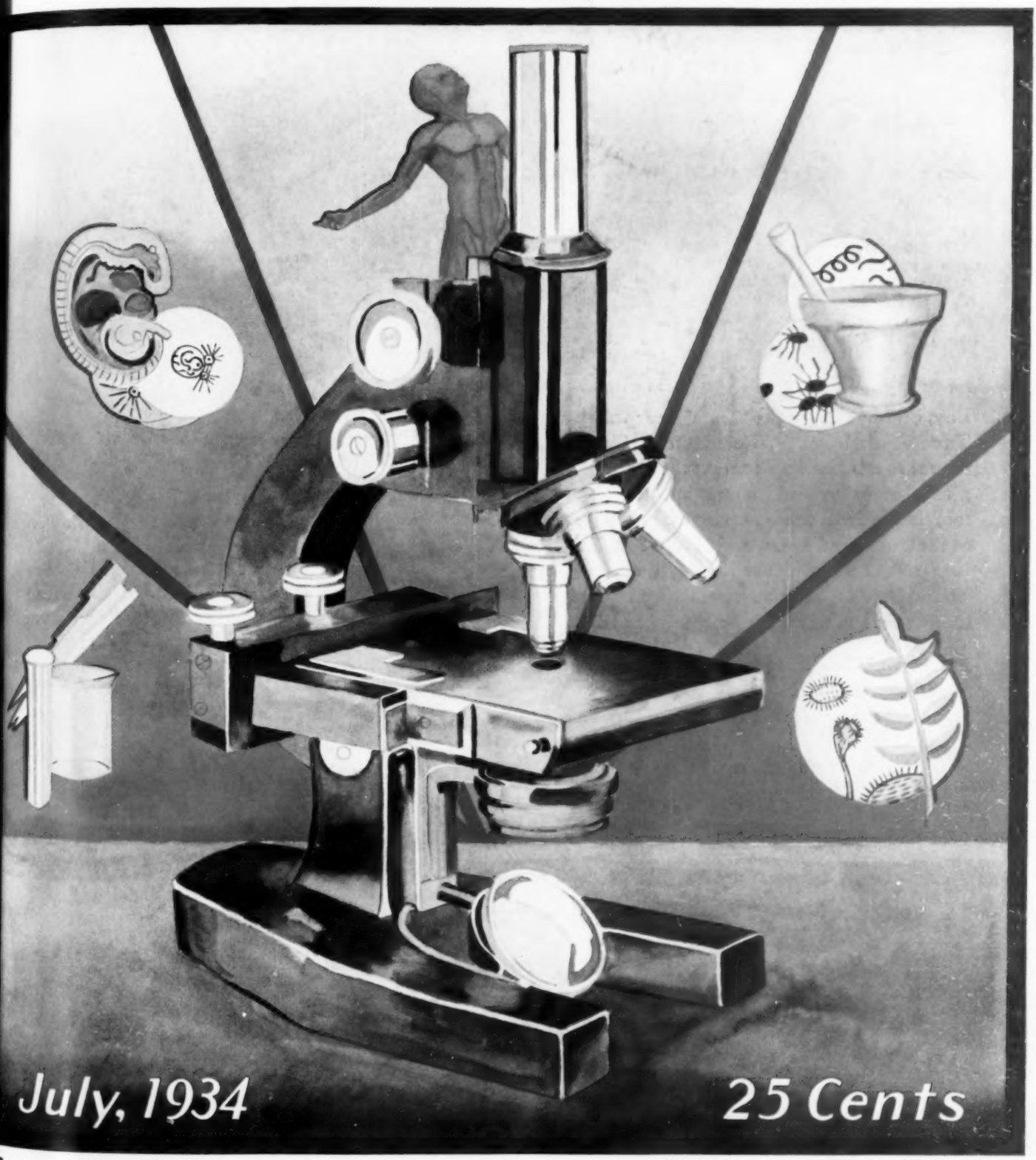
HYGEIA

The HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION



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HYGEIA•

THE HEALTH MAGAZINE

Published by
the American Medical Association

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Volume 12 Number 7

JULY, 1934

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CONTRIBUTORS TO THIS ISSUE

● CURTIS BILLINGS, whose articles on accident prevention have appeared frequently in HYGEIA, is affiliated with the National Safety Council. . . . An encouraging message is brought by DR. ROBERT H. KENNEDY in his article on cancerous and precancerous lesions of the skin. . . . DR. J. ROBERT BURKE is the author of numerous articles on the eyes. Among his contributions to HYGEIA have been "What to Do for the Cross-Eyed Child"; "First Eyeglasses at Middle Age," and "Something in Your Eye?"

● Articles such as "Speaking of Hair" and "The Problem of the Overweight Child" have made the name of DR. W. A. L. STYLES familiar to HYGEIA readers. This month Dr. Styles deals with overweight in the adult. . . . MARY C. BROWN, nutritionist, gives helpful hot weather hints. . . . LUCRETIA PENNY'S story, "The Spite Fence," brings another of the colorful adventures of Miss Jackson, county nurse.

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● JAMES A. TOBEY, DR.P.H., is author of the book "Riders of the Plague," and has contributed frequently to HYGEIA. . . . DOROTHY WALTON tells of the meat inspection service of the Bureau of Animal Industry.

● DR. GAYLORD W. GRAVES is clinical professor of pediatrics, New York University and Bellevue Hospital Medical College, and professor of pediatrics, New York Polyclinic Medical School and Hospital. . . . EDITH BODEN relates more of her adventures in Labrador as a member of the staff of Sir Wilfred Grenfell. . . . DORIS W. MCCRAY, food consultant, discusses the fruit juices accepted by the Committee on Foods.

● DR. CLAUDE LILLINGSTON continues his series on "Our Parasites" with a discussion of "that great and enterprising traveler, the bedbug." . . . In his series on "Training for Athletics and Health," ALFRED E. PARKER, physical education instructor, Berkeley (Calif.) High School, deals with the timely subject, "Your Summer Vacation."

● DR. OSCAR REISS, associate professor of pediatrics, University of Southern California Medical School, and DOROTHY WALTER BARUCH, instructor in education, Whittier College, add a chapter on "Mysterious Fluids" to their serial, "I Want to Know."

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JULY, 1934

A Sensible Vacation

WHEN your head begins to droop about 3 o'clock in the afternoon, when you begin complaining of the heat, and when your work loses much of its usual interest, you are about ready for your vacation. You may think you are doing better to stay home and work. Scientific studies show, however, that a vacation is an asset; you do better work afterward.

The vacation costs of an average family in the United States with an annual income of from $2,400 to $3,000 vary from $5.75, spent by a worker who stays at home and goes to the ball game every afternoon, to $180 a year, spent by families that take motor trips. Most persons think that the cheapest vacation that they can get is to visit the relatives, but even that costs the average family $25.

Sometimes the cheapest vacation is the best, and the most expensive vacation may prove to be a total loss from the point of view of producing rest and health.

Any vacation should bring about a change in the routine of daily life, but rest is most important. Executives who work under high pressure with great responsibility are likely to take both winter and summer vacations. If we live twice as fast as we used to, we ought to rest twice as much and twice as often.

THE TYPE of vacation you choose should be such as to cause you to forget your usual occupation and habits. Desk workers and clerks should preferably spend their vacation in some occupation involving muscular exercise. Manual laborers will probably find their vacation most profitable with suitable amounts of time spent in rest flat on the back, perhaps in a hammock with a good book.

Your vacation should be a change not only from the routine of work but also from the routine of home and from the usual type of recreation. It should be a change not only of surroundings but also of people. Some men may find it difficult to take a vacation without the wife and family. Some families may find it difficult to take a vacation without their intimate friends and relatives, but a real vacation probably means the elimination of these constant associates. Everybody knows that some persons can get on one's nerves. Persons of that type are no help on a vacation.

IN PICKING a place for your vacation always consider questions of health. Pure water, good sanitation, pure milk and a good food supply are absolutely essential. The motor vacation, which involves stops in numerous camps, demands particular watchfulness. The summer camp for children needs to be studied with these points in mind.

Some persons traveling on vacations try to get along with a diet of bread, eggs and coffee. Such diets

EDITORIAL

are tiresome and lack the essentials of a well balanced meal, which should include fresh fruits, vegetables and plenty of milk. A suitable diet is a great help to a healthful vacation. Many persons who go to American plan hotels overeat and return from their vacation with their digestion completely disordered by the extra strain they have borne during the weeks supposed to be given to rest. Remember that the internal organs as well as the muscles and the brain need a rest.

THE CHIEF factors of a healthful vacation can be listed as follows: first, change of occupation; second, sunshine and the open air; third, plenty of rest at night and during the day; fourth, congenial friends and surroundings; fifth, freedom from social routine.

Your vacation should always be selected according to your physique and your state of health. The real vacation for the average city dweller is one in which he can have comforts suitable to the condition of his body. Any middle aged man who constantly launches himself into a program of physical activity needs many accessories for comfort or recreation.

After 18 holes of golf, after 3 or 4 miles of walking in the woods, after two hours of horseback riding, after pulling a boat upstream, or playing two or three active sets of tennis, a real rest is required. For a real rest a real bed with a real mattress is a help to weary limbs. A hot bath with a rub down by trained hands helps to soothe the tired muscles.

Instead of these surroundings, many a worker who has had fifty weeks of office routine tries mountain climbing or 36 holes of golf daily, putting a terrific stress on his blood vessels and on his heart. Thereafter, instead of sleeping in a comfortable bed, he finds a strange bed with a mattress concocted from cotton, straw or corncobs. Then he wonders why his back and his thighs hurt so the next morning.

Many a vacationist has been heard moaning for his own bed, his own hot bath, coffee cooked the way he likes it, and the morning paper with the news that interests him. Under such circumstances, there is no place like home!

A GOOD vacation is one in which the people who surround you are so congenial that you never lose your temper. A good vacation is one in which your health is benefited, as determined by its effects on your digestion, your blood pressure, your circulation and your nervous system. A good vacation is one taken in a place where there is pure water, pure milk and a good food supply.

A good vacation is one in which the muscles are exercised but not to the point of exhaustion or danger of injuring the tissue beyond repair.

Although a man who thinks so little of his business that he can forget it completely while on a vacation is not in the right business, nevertheless a good vacation is one in which you think of your business but do not worry about it.

Hazardous Summer Days

By CURTIS BILLINGS

THIRTY YEARS AGO the Fourth of July was a very special day in the life of the American child. On this day—indeed, for the previous fortnight—he was permitted playthings the like of which parents would not tolerate at any other time of the year. These included firecrackers, Roman candles, skyrockets, gunpowder and various other pyrotechnic materials of lesser splendor and danger used theoretically as a means of giving proper celebration to the signing of the Declaration of Independence by our forefathers.

The only difficulty was that July 5 found sober citizens awakening to a dreadful day of regret. The number of persons who had lost their lives was measured in the hundreds, and a good share of these were children. Eyes were put out; hideous burns were suffered and sometimes whole towns went up in conflagration as a result of carelessness in the handling or storing of fireworks. A statistician made a few calculations and discovered that since the birth of our nation more lives had been lost in celebrating independence than in winning it.

The movement for a safe and sane Fourth of July was started; and despite the outcry of fireworks manufacturers who wanted profits, the sentimental objections of childish adults and the sincere opposition of the children, the movement gained headway. City after city and town after town passed ordinances prohibiting the sale of pyrotechnic materials within their limits. To be sure, "bootleggers" opened stands on the outskirts and sold considerable quantities of the products, but still the bulk of the traffic was stopped. Moreover, cities began providing spectacular exhibits for the whole community and employed professionals to set them off.

So effective was the campaign that during the last half dozen years the toll of death from mishaps with fireworks on the Fourth of July has dropped to a dozen or even less. Of course awful tragedies still occur, and hundreds of serious but nonfatal injuries result; but on the whole the problem has come close to solution.

This does not mean that fireworks are any safer than they ever were. It merely means that the only way to avoid accidents with them is to prevent their use. The nation shuddered a year or two ago when it read of the death of six boys of Butte, Mont., who selected as their prank the explosion of a keg of dynamite. Something went wrong.

It shuddered again when it read of the 2 year old girl who went into her front yard to play. A car full of excessively patriotic adults drove by, and the greatest patriot of them all tossed a sizable firecracker into the yard probably in an effort to stimulate his brand of fervor in the child. The cracker was slow in exploding; and by the time it did go off, the baby, thinking it was stick candy, had picked it up and put it in her mouth. Her lower jaw was blown away.

Innocent sizzlers, pinwheels and sparklers cause burns, and all too often infection and tetanus result. No statistics are available on the number of eyes that have been lost by misdirected shots from Roman candles.

It is the adult who must decide whether or not his children are to have fireworks this year. He can procure them in most places merely by driving to the edge of town. Children cannot be left to decide for themselves; fireworks have an irresistible appeal for them. They will have them if they can.

To parents who insist on permitting their children to celebrate the Fourth of July with fire-

National Safety Council

The motorist must have a healthy regard for railroad tracks with their "stop, look and listen" signs.

works the National Safety Council suggests that the following cautions be passed along to the children:

Don't hold firecrackers, even the smallest, in your hands.
Don't throw firecrackers at any one.
Don't shoot them off under bottles.
Don't carry them in your pockets.
Let firearms alone.
Don't play with or carry dynamite caps.
Avoid gunpowder and toy pistols.
Remember that powder burns are dangerous, even if they do not look so. They may cause infection and tetanus, or lockjaw. If you do get burned, get first aid immediately.

Despite the progress toward the elimination of fireworks and these particularly deadly types of accident on the Fourth of July, the day still marks the peek of fatal mishaps in America. Two prime diversions more than make up for the reduced number of fireworks accidents. These diversions are motoring and bathing.

For safe and efficient motoring a working knowledge of the rules of the road is essential. The motorist must keep the mechanical equipment of his car in good condition. He must know and appreciate the rights of pedestrians on the streets and must have a healthy regard for railroad tracks with their "stop, look and listen" signs.

While every city has a traffic ordinance containing certain peculiarities that the local driver should know and although states have a body of motor vehicle laws with which he needs to be familiar, there are a great many rules of common practice, common courtesy and common sense that apply everywhere.

That one should not hug the center line on a country highway but should stay on the right side is one of these rules, and it is violated more often than one likes to think. Other vehicles should be passed on the left except street cars, which must be passed on the right. If you are traveling slower than the rest of the traffic, stay well over to the right so that others can pass you without danger. At intersections, give the right of way to the driver coming from your right, but do not presume too much when you have the right of way if you want to be safe. The other driver may not know that you have it.

Stop to park with your right wheels within 6 inches of the curb. Cramp the front wheels toward the curb, and set the hand brake, especially on a hill. Always signal when preparing to stop, start or turn. Sound your horn before backing or passing other cars, and obey signals and signs to the letter. When a change in a signal is indicated, do not run through the yellow light or "jump" the green. These practices are both discourteous and dangerous, and they actually save little time.

Turn left from the left lane and right from the right lane except in the few cities that have other rules. Stop before emerging from a private driveway or from an alley. When a fire engine approaches, slow down to the curb and stop. When in doubt, always go slowly.

Setting off firecrackers under a tin can is an almost infallible recipe for a serious accident.

National Safety Council

An outstanding authority on highway safety, Robbins B. Stoeckel, former commissioner of motor vehicles of Connecticut and now affiliated with Yale University, has defined a good driver as follows:

To be a good driver in the terms of applied ethics is to be a person of good manners, ready to see and appreciate the problems of others, to make proper allowances for them and to exercise even a little more patience, care and consideration than is actually called for by the letter of the law.

Few drivers are so capable that they can afford to handicap themselves by operating a machine which is not in the best of condition, although thousands do. In the state of Pennsylvania during the month of November, 1931, vehicle defects accounted for 368 accidents in which 12 persons were killed, 327 were injured, and property was destroyed to the extent of $52,000. During 1931, nine states carried out campaigns for the inspection of motor vehicles; and of the 3,800,000 registered automobiles in these states, 90 per cent were examined. Almost half of them were found to have brakes in an unsafe condition; almost two-thirds had faulty headlights, and one-twentieth had defective steering mechanisms. Thus the inspection proved that millions of potential accident causes existed that needed only a particular set of circumstances to result in mishaps.

One must remember also that the average age of the automobile on the street in 1934 is greater than it was in 1931 and that consequently their condition is not as good. Brakes, lights and steering gear are, of course, the Achilles' heel of the modern car, and these should be watched with a careful eye.

From 40 to 45 per cent of all persons killed and injured in automobile accidents are pedestrians. The human body does, in truth, offer little resistance to the ton or more of steel in a car. Since this is so and since the pedestrian almost always is the loser in a crash, the law is usually on the side of the person on foot.

National Safety Council

Since the birth of our nation more lives have been lost in celebrating independence than in winning it. The only way to avoid accidents with fireworks is to prevent their use, and this the adult must decide to do. Children cannot be left to decide for themselves, for fireworks have an irresistible appeal for them.

Drivers thus must take a large share of responsibility for the safety of the pedestrian even when the latter is careless.

Rules for drivers in this connection are simple. When two or more pedestrians are together, watch out. They might scatter when you approach, making it next to impossible for you to miss them all. Do not "freeze" a pedestrian by creeping up on him and suddenly sounding your horn. This is a mean and cowardly trick. Give every consideration to the person alighting from or preparing to board a street car. Probably the most deplorable joke in the world is that of racing through water or mud to splash pedestrians.

Especially great care must be exercised in dealing with children. Eighteen per cent of all persons killed by motor cars are under 15 years of age. Many drivers who are careful in congested downtown districts become careless when they drive on residential streets, and that is where children are likely to be playing. Remember that even if speed is in and of itself not a cause of accidents, speed will make any crash a great deal more deadly to everyone concerned.

Despite the millions of dollars that have been expended in the United States to eliminate railroad crossings on grades, thousands of these dangerous places still exist even on main highways, and they take several thousand lives each year. All the accidents could be averted by the exercise of reasonable care. One large railroad recently reported that in a single year, 500 crossing gates, lowered to protect the public, were run into and destroyed by automobiles. Another railroad reported that of ninety-five fatal accidents occurring at its crossings, fifty-four resulted from automobiles running into the sides of trains. Still another company made actual observations of practices of drivers at its crossings and found that 2,907 (81 per cent) looked neither way before crossing, that 602 (17 per cent) looked in only one direction and that 80 (2 per cent) looked both ways.

I have already said that more persons lost their lives in automobile accidents on the Fourth of July than on any other day of the year. The explanation is not hard to find. More cars are on the streets and highways, thus increasing the exposure, and driving is rendered more dangerous than it ordinarily is because of this congestion.

The same reasons hold true for the excessively large number of drownings that take place on the national holiday. More persons are in the water; and when beaches are crowded, it is difficult for guards to keep a close watch. Also many persons motoring through the country choose rivers and lakes for bathing where there are no guards at all. It is dangerous to swim and dive in strange water where the depth is unknown; certainly it is dangerous for groups to enter the water or go canoeing or boating unless at least one member is a strong swimmer and capable of rescue work.

Every one should be thoroughly familiar with the prone pressure method of artificial respiration by which many lives are saved each year. It is used in all cases of suspended breathing whether the suspension is the result of drowning, asphyxiation, electric shock or any other cause. Never give a victim up for dead until stiffening of the body sets in. Sometimes lives have been saved after artificial respiration has been applied for four hours. One never knows when the opportunity to save a life in this way will come, and so one must be prepared for any emergency. One must apply the system without a moment's delay.

Happily, resuscitation is easily carried out. Lay the patient on his stomach with one arm extended overhead. The other arm should be

crooked at the elbow so that the head can rest on one side on the hand or forearm with the nose and mouth free for breathing. Remove gum or false teeth or any other foreign substance from the mouth.

Kneel, straddling the patient's thighs, and place the palms of the hands on the small of his back with fingers resting on the ribs, the little finger just touching the lowest rib and the tips of the fingers just out of sight. This position of the hands is important.

With arms held straight, swing forward slowly, so that the weight of your body is gradually brought to bear on the patient. Swing forward until your shoulders are directly over the heel of your hands and your arms are exactly vertical. This operation should take about two seconds.

Now immediately swing back to remove the pressure from the patient's lungs, and after two seconds swing forward again. Repeat the process from twelve to fifteen times a minute; for the double movement of compression and release, make a complete respiration in four or five seconds.

As soon as this process is started and while it is going on, if an assistant is present he should loosen any tight clothing about the patient's neck, chest or waist. Keep the patient warm, but do not give any liquids whatever by mouth until he is completely conscious.

Many persons make a serious mistake by permitting the patient to get up and walk as soon as he has fully recovered. This constitutes a dangerous strain on his heart. He should be kept lying down and absolutely quiet. After he has regained complete control of his mental faculties, however, it is well to give him some stimulant such as a teaspoonful of aromatic spirits of ammonia in a small glass of water or hot coffee or tea.

Do not forget to start artificial respiration immediately on removing the victim from danger. Do not mistake a brief return of natural breathing for success. The patient must be watched, and if his breathing stops or wavers, the treatment must be resumed at once. If it is necessary to change operators in the course of treatment, do so without losing the rhythm of respiration. Terrific force is unnecessary and undesirable. A boy of 12 has weight enough to administer artificial respiration to a grown man.

The accompanying table shows the results of a day's celebrating in a recent year. The facts were gathered by the Associated Press.

Casualties Resulting from Fourth of July Accidents

Locality	Fireworks Deaths	Auto Deaths	Drowned	Other Deaths
New England	2	9	22	4
Mid-Atlantic states	3	27	34	20
South	1	16	15	10
Midwest	1	30	35	20
Pacific Coast	0	19	27	23
Southwest	1	12	5	10
Mountain	0	5	1	2
Total	8	118	139	89

Schools are dismissed each summer not for the good of teachers or school executives or to save money. They are dismissed for the welfare of the children. But to many children, vacation time is a time of needless suffering, and to some it is a time of death.

About 25 million children emerged happily from schools during the past few weeks. When school reconvenes in the fall, approximately 5,000 seats will be empty because that many children will have met death during the summer. About 1,200 will have died in automobile accidents, and a like number will have drowned. The other accidents will include such commonplace disasters as burns, scalds, falls and asphyxiations.

Parents can do much to safeguard the lives of their children. First and foremost they themselves can observe rules that make for personal safety and thus set a good and a safe example for the children to follow. Also they can, and certainly they should, give time, thought and energy to teaching their children how to avoid accidents. Safety is a teachable subject. Mothers and fathers can be thankful for that!

H. Armstrong Roberts

When beaches are crowded, it is difficult for guards to keep a close watch. It is dangerous to swim and dive in strange water where the depth is unknown; and it is dangerous for groups to enter the water unless at least one member is a strong swimmer and capable of rescue work.

Skin Cancer—

THE PROPER CARE of the skin has always been, and one hopes it always will be, of great importance, especially to women. It should be a matter of pride to every woman to preserve her skin in as wholesome a condition as possible and so to enhance her personal charm and beauty.

Of all forms of malignant disease, cancer of the skin is the easiest to recognize early because it can be seen and does not have to be felt or deduced from various, possibly vague, symptoms. Yet the doctor sees many patients who have delayed so long in applying for treatment that a formidable procedure is required for cure, and in some cases palliation only can be attempted, the condition having progressed beyond any probability of complete removal.

The commercial aids which have been devised in recent years for the care of the skin are almost innumerable. "Beauty culture" costs this country about eighteen hundred million dollars annually. One cannot imagine that even ten million dollars could be used each year for the treatment of all the cases of skin cancer in the United States; but if it were, there would still be seventeen hundred and ninety million dollars to spend annually on aids to beauty.

Evidently it is not lack of money or lack of interest in the skin that keeps the average person from going in search of proper treatment. He cannot know what needs attention until he has been instructed and warned.

Changing styles in dress affect the methods of caring for skin conditions. Up to a few years ago a woman's worry about her skin was chiefly limited to the face, neck and hands. The field has now been much enlarged. The advent of sheer silk stockings was the chief factor in a complete change in the method of treating varicose veins in order to cope with the new visibility. Many women regret that more forethought was not taken when they were children as to the site used for vaccination. The doctor today is in a quandary as to where to vaccinate, not knowing what change in dress styles the next generation may devise. So also in various skin lesions that may have been one's hidden cross from childhood, treatment is now required in order to comply with style. Unfortunately, however, there are still many lesions that are hidden from the light and so are often unconsidered.

All the attention to skin culture seems not to have affected the onset of cancer either for better or for worse. Greater cleanliness and protection from dirt probably balance the effect one might expect from the considerable number of irritants used in some skin preparations. At least, the percentage of patients dying of cancer of the skin was practically the same in 1932 as it was ten years before.

In 1932, the last year for which figures have been published, the United States registration

area showed 122,339 deaths from all forms of cancer. Of these, 3,120 were from cancer of the skin; that is, about 2.6 per cent of the whole number. In New York City alone there were 116 deaths during that year from cancer of the skin. It seems amazing that this should be so when all these lesions are visible, accessible and readily curable if they are treated in the early stages.

To put these figures in another way, 5 out of every 200,000 people alive in 1932 died of cancer of the skin. In general, it is estimated that in any year the number of persons suffering from all forms of cancer is three times the number of deaths. Because of the long duration of many cases of cancer of the skin and the rapid cure of others, however, it is probably conservative to say that in any year there are at least ten times as many existing cases as there are deaths from this cause. This would mean that more than 30,000 patients are suffering from cancer of the skin in this country this year.

In 1927 there were 1,634 deaths from the disease in men and 1,124 in women in the United States; that is, women make up about 40 per cent and men 60 per cent of the patients.

Cancer of the skin is an uncommon disease before the age of 40, so that statistically it is important to know what the death rate is for that part of the population over 40 years of age. For the period between 1900 and 1920, there was

Actual and Potential

It should be a matter of pride to every woman to preserve her skin in as wholesome a condition as possible and so to enhance her personal charm and beauty.

By

ROBERT H. KENNEDY

a death rate of 19 in every 200,000, or four times the death rate in the total population. Many forms of cancer seem to be distinctly on the increase, but in skin cancer no tendency to increase or decrease was shown between 1910 and 1930.

As little is known about the cause of this disease as about the cause of all other kinds of cancer. It was formerly believed that lesions were so common on the face because of exposure of men working in wind, cold and the extremes of weather, connected with an outdoor life. This theory seems to be exploded with the increase of city life and the evidence that there is just as much skin cancer among city office workers as among farmers and lumbermen. In spite of the care they give their faces, two out of every five sufferers are women.

At one time it was a popular theory that the irritation of unremoved dirt caused cancer of the skin. Certainly with the advent of modern plumbing and attractive soap advertisements the world must be cleaner than it was a generation ago, and yet the proportion of patients with skin cancer is the same. Again, there seem to be just as many victims in the so-called upper strata, socially or financially, as in the lower, so that personal hygiene appears to play little, if any, part.

There is, however, a group of cases of cancer of the skin, occurring as a result of occupation. These cases are rare in this country; in New York State, for instance, such cases have never appeared as a basis of a claim for compensation. They are, nevertheless, of great interest as being definite proof that some cases of cancer occur after prolonged irritation.

"Tar cancer" is the most frequent occupational cancer in England, according to O'Donovan. After years of work in their occupation, it may develop in tar distillers, gas works stokers, creosote workers, tar road sprayers, chimney sweeps, paraffin workers, benzine distillers, anthracene laborers, coal oil workers, pitch handlers, lamp black workers, aniline dye workers and in those who sprinkle soot, as, for example, in gardeners.

"Arsenical cancer" is found among workers in Paris green (rat poison), among wall-paper makers, smelters of ores such as tin, nickel, lead, copper, iron and silver, and among furriers, tanners, taxidermists and farmers using arsenic sprays.

The handlers of crude mineral oils are also liable to contract cancer. In Tibet the people are in the habit of wearing hot "stoves" against the abdomen in cold weather, and after many years, cancer frequently results.

Cancer not infrequently develops in the scars of old burns, particularly if the burns have healed slowly and with considerable irregularity. This is a strong argument for the increasing use of skin grafting to speed up the healing of burns. One type of burn is particularly prone to be followed by cancer; this is the repeated, slight destructive effect of radium or the x-rays over a period of years.

In addition, there is a large group of skin conditions which are perfectly safe and benign of themselves, but which, if allowed to remain for years, take on malignant changes and become cancers in some persons. These are commonly called precancerous lesions. I do not like the term, for it sounds as though all these lesions are stages of cancer and sooner or later will become cancer. This is not true. "Potential" cancer seems to describe the case more exactly, for although these lesions have been known to become cancerous in some persons, this danger can be prevented by removing the lesion before the development of cancer. The importance of these lesions is in the fact that they are potential ground for the development of cancer, and therefore they should receive early and proper attention. In this field, cancer is definitely preventable, although it is always impossible to tell in which patient it has really been prevented and in which case cancer would never have developed anyway. However curable a cancer may be, personally I would prefer to have any possible source removed and be told that the lesion is not cancer, than to take a chance that it will never develop into a cancer.

There is just as much skin cancer among office workers as among those who follow outdoor pursuits.

The sebaceous cyst, or wen, is common in both sexes and at all ages. It is due to the shutting off of a hair follicle or sweat gland. Hair oil or perspiration continues to form, and a sac filled with cheesy material is produced. This may continue to grow or may remain stationary for years without change. A sebaceous cyst has nothing to do with cancer, but there are plenty of cases on record in which cancer has developed in the cyst wall. This rarely occurs before 60 years of age. In one report of 236 cysts removed, 5 per cent showed cancer. These are easily removable surgically, and the scar depends on the size to which the person has allowed the lesion to grow. There is no excuse for allowing a lesion to remain for the period of years necessary to develop cancer. The growths on the face and scalp seem to be the ones most likely to become cancerous.

Warts, known medically as verruca vulgaris, may take on a malignant change. In older persons what appears to be a wart is often cancer from the start.

Senile keratosis is a common condition of the skin in later years, occurring particularly on exposed surfaces such as the face, neck, and back of the hands. The lesions are flat or slightly elevated, from ¼ to ½ inch in diameter; there are usually several, and they vary in color from yellowish brown to dark gray and gray black. They are covered with dry scales or crusts. Another type, which appears quite similar, is promoted by a greasy skin and appears only on the unexposed surfaces usually somewhat earlier in life; that is, between 40 and 60 years of age. Both of these types may develop into cancer, although the kind of cancer will be different in each case. As the change into the cancerous stage gives no symptoms, these lesions should be attended to when they are discovered.

Almost every person has at least one mole on some part of the body. Any of these lesions may develop into cancer. A doctor is likely to be consulted about those on exposed surfaces or where they are liable to be irritated by clothing or combs, but many times a person takes no notice of more important moles. Of course, the great majority of moles are benign and will always remain so. It is difficult to be certain which ones will remain benign. The most common type is the soft, white or light brown pigmented mole. It is possible for these moles to become cancerous, but this is apparently rare and never the case if they are thoroughly removed. The warty mole, which varies in color from a light to a dark brown also only rarely becomes malignant. Nevi, or birthmarks, with or without hair, whether light or dark colored, and however large, rarely become malignant. An important thing to remember is that if they are treated at all they must be thoroughly removed. Inefficient treatment may be of such an irritant nature as to set up a malignant change. A type that needs particular attention is the nevus that is a mottled brown or blue, slightly raised and perhaps warty in part of the surface. Such nevi frequently seem to become cancerous. If there is any question about such a birthmark, a physician should be consulted. If there is the least change in size, elevation or color, treatment should be sought immediately. There is absolutely no truth in the common statement that removing these lesions causes cancer. If they are thoroughly removed, there will be no cancer elsewhere unless it had already spread before the removal. Any mole that might from its location be irritated by shoes, clothing or shaving should be removed, whatever its character.

Scarring from burns, whether chemical or thermal, or from the x-rays or radium, was mentioned before as a possible source of cancer. Scarring from disease acts in a similar way. The most common of these scar-producing diseases is tuberculosis of the skin, particularly in its form known as lupus. This sometimes heals with marked scarring, and malignant degeneration quite commonly occurs. Cancer of this type is a rapidly growing lesion when it does occur, and treatment must not be delayed.

Chronic ulcers from any cause are liable to show a cancerous change after years of irritation; for example, ulcers from varicose veins and those resulting from diabetes, circulatory changes or x-ray burns.

Paget's disease of the nipple is a not uncommon condition. It is characterized by scaling and cracking of the nipple and is often considered an eczema. Later it may become ulcer-

ated and bleed. In this case the physician is not dealing with a precancerous condition but usually with a real cancer. Any suggestion of such a lesion deserves immediate consultation with a physician.

The importance of considering all the conditions mentioned, with the exception of Paget's disease of the nipple, is to emphasize that cancer is preventable if proper attention is paid to these lesions. They do not start as cancer. They can be removed and cured before they become cancer.

In connection with a discussion of actual cancer of the skin it is important to emphasize that frequently pain is not a symptom of cancer and that the lack of pain in any growing lesion is often suggestive of cancer. It is rare to see a patient with cancer in any part of the body who does not give as her reason for delay in consultation, after noticing a lump, that she did not have any pain. The doctor's problem in persuading cancerous patients to seek treatment in the early stages of the disease would be much simpler if it were possible to persuade cancer to commence giving pain.

Although there are many forms of skin cancer, three are common and distinct enough to require detailed description. Basal cell epithelioma commences as a condition of slight malignancy. It does not travel to other parts of the body by veins or lymphatics but progresses locally through any tissue that lies in its path, including bone. Its frequent location is on the face above a line drawn through the angles of the mouth. Often a person beyond the fourth decade has a thickened horny area of skin or a wart for some time and suddenly appreciates that this is growing in extent or thickness. Other persons note a scab or a scale. This falls off, and a minute raw area is found beneath. A larger scab forms, and when this falls off it is seen that the raw area is larger, and so on. Treatment is simple at this stage. Delay often means the removal of an eye, the loss of a portion of an ear or of the side of the nose. What might have been a complete cure within a month becomes a difficult problem of complicated plastic operations, marked scarring, loss of time and questionable complete removal.

Old scars, as mentioned before, are frequently the base for another type of cancer, the squamous cell epithelioma. The first sign here may also be a warty appearance, a scaling or a scabbing. Early, proper and radical treatment is necessary as this type of cancer may travel early to the regional lymph nodes and will kill by its spread through the circulation to various parts of the body. Basal cell epithelioma remains, as it began, a local disease, killing only if it extends to some vital organ such as the brain or its coverings. Squamous cell epithelioma, beginning also as a local disease, may quickly become a generalized disease, destroying the person by involving organs at a distance. If a basal cell epithelioma is neglected or improperly treated, it may later show the changes of squamous cell epithelioma and spread over the body.

The third frequent type of cancer of the skin is one of the most malignant tumors known. Black pigment is produced in the cells composing it, and from this it derives its name, melanotic carcinoma. A bluish black or mottled brown mole or a deeply colored wart may have been present throughout one's life on any part of the body. Suddenly, at any age, one becomes conscious that a change has taken place in diameter, in elevation above the skin or in color. In addition, such a lesion may appear where one had never before been noted. Immediate thorough treatment is necessary when this evidence of activity is present, for the process is often one of rapid metastasis to vital parts by both the lymphatics and the blood vessels. It has often been said that operation spreads these dark spots. There is no truth in this unless the removal is done in such a way that the affected area is actually cut through. A sensible person will have these dark colored blemishes removed before there is any sign of growth or change; that is, before there is any likelihood that malignancy has set in.

The treatment of cancer of the skin is first and foremost the proper treatment of the various precancerous lesions mentioned. A warning must be expressed against the various electric treatments, ointments and applications advised in beauty parlors. Advice and treatment from a doctor competent in skin diseases would cost little more. The attendant in a beauty parlor is no better qualified or trained to treat skin diseases than the plumber. The beautician is breaking the law whenever he advises treatment in such cases, but unfortunately law breaking is not always taken seriously today.

Whenever a person notes something unusual on his skin, he should immediately consult a doctor. Cancer starts as an exceedingly small change from the normal. It is always purely a local disease at the start. If it is properly attended to at this time, it will be cured and remain cured. If it is incompletely or inefficiently cared for, it may recur and progress until it results in permanent disfigurement or death.

There are only two methods of treatment that have any value; these are surgery and radiation. Surgery may be done with a knife or with the actual cautery. Radiation may be either by the x-rays or by radium. In some types, surgery is better, in others radiation, and in still others either type of treatment will give a similar result; that is, cancer of the skin is a varied problem, and one method of treatment is not proper for all cases. Each patient must be individualized, and consul- *(Continued on page 636)*

Your Children's Eyes

By J. ROBERT BURKE

Century Photo

Corrective lenses were prescribed, and immediately he was a different child.

THE QUESTIONS which parents ask oculists year after year are so similar, and generally so sensible, that a discussion on the general care of children's eyes should be of interest.

I shall assume that your child has arrived in the world without noticeable abnormalities in his eyes. You may have been told, along with other general instructions for his care, that you should keep his eyes clean with a "warm boric acid" solution. Too often you are not told the exact proportions to be used in making the solution, and that is the reason for one of the first questions, "How strong a solution of boric acid should I use in cleansing my baby's eyes?"

Water that has been boiled and then allowed to cool to the point where it is a little more than warm is probably the best thing to use. Boric acid, in the proper strength, does no harm but does no more good than warm sterile water. The action is a mechanical one; the warm water simply softens the foreign material which has accumulated, so that it may be removed more easily. If you feel that you must use boric acid, dissolve 1 level teaspoonful of the powder in 4 ounces of boiled water. There should not be too much fussing about keeping the baby's eyes clean, as nature itself does that pretty well.

The question is asked, "How much light should there be in the room where the baby sleeps?" The answer is "plenty." Of course the sun should not be allowed to strike the eyes directly, but it is a good idea to teach the child to sleep in a bright room for then he will sleep equally well outdoors without necessitating lowering the hood of the carriage and thus preventing the fresh air from reaching the baby. Likewise daylight saving time will hold no terrors for the mother who dislikes having her schedule upset.

Here I might bring up the subject of the care of the eyes at the beach. Do not place your baby under a parasol on the beach and think that you are doing the best thing for him. If he is at the "sitting" age and cannot navigate well by himself, place him with his back to the water, as the glare reflected from the water does great harm. The white sand alone reflects more glare than is good for him. An upset stomach in the middle of the night may be directly traceable to the eyestrain experienced during a long stay on the beach. A baby's own yard is as beneficial for him as the beach, as the sun is equally as potent there, and the green lawn and shrubs do not produce the glare that the water and sands do. If you are in the habit of letting your older children play on the beach all day, be considerate enough to furnish them with properly tinted glasses. Their digging will be much more fun when they are not obliged to squint. You parents should protect your own eyes in like manner. Although you may be able to shift

your position so that you do not face the water or sun directly, the glare from the sand and rocks still produces eye fatigue. Observe sometime the number of persons at the beach, without glasses, who are able to keep from squinting. They are hard to find. The same precautions should be taken at high altitudes on clear days.

Often a mother states that her baby suddenly started crying severely and is rubbing one eye with his fist. Examination in these cases, after the presence of foreign bodies has been ruled out, shows that the cornea has been abraded, even though the infant has not had access to an object with which he might scratch it. This scratch is usually caused by a too long finger nail which has been stuck in the eye by the baby himself. This is more liable to happen as the baby grows older and becomes more active in using his arms and legs. Keep his nails cut as short as possible; this applies to the toe nails as well as the finger nails, because, being a contortionist, a baby is liable to stick a toe in his eye.

Another frequent question is, "My baby is a month old now. One eye 'waters' more than the other, and there is an accumulation of milky secretion in the corner toward the nose. I wash it away, but in an hour or so I find more has appeared. Is this something serious?" This condition is probably due to a closure or semiclosure of the tear duct, which normally acts as a means of carrying off the excess secretions which nature provides to lubricate the surface of the eyeball. In an infant this duct is exceedingly small and any slight alteration in its course or the size of the opening easily causes trouble. At the side of the nose, opposite the inner angle of the eye, there is a small sac under the skin, and through this sac the tears pass on their way from the eyes to the nose. When the tear sac outlet is blocked, the sac becomes distended with secretion, and this acts as a good incubating medium for ever present bacteria; they multiply and produce mucoid, mucopurulent or pussy discharges. The mother is asked to press gently over the region of the tear sac on the affected side. If she reports that suddenly there is a greater amount of pussy material showing against the eyeball, between the lids, it means that there is a diseased condition of the tear sac. This is simply the accumulated material held by the diseased tear sac; and since the natural outlet to the nose is blocked, the pus returns to the eye when the tear sac is collapsed by the pressure of the finger. The eyeball may become very red because of the secondary infection of the conjunctiva, which covers the eyeball and the under surfaces of the lids. The treatment of this condition should be an hourly gentle expressing of the material from the sac when the child is awake, irrigation of the eye with sterile water to remove all the material possible, and then instillation of an antiseptic solution prescribed by the oculist. If the condition does not clear up in a short time, the oculist will advise subsequent treatment.

As the months go by and the child approaches the first year, the mother is alarmed when she notices that one eye seems to turn in, or out, when its fellow is directed straight ahead. The eyes are supposed to work in conjunction with each other, and two images should be produced by every object we see. One image should be perceived on the retina of each eye, and when these images are thrown in the proper places, in the retinas, stereoscopic single vision is produced. That is the condition to be sought for the baby, and success depends on the proper alinement and coordinate movements of the eyeballs. If these movements and alinements are not correct, two distinct images of one object are seen. The muscles of the eyes and their control centers determine whether or not fusion of the images is to take place. In some cases the fusion centers and the muscles themselves have not developed equally in each eye, and imbalance is temporarily present. In most of these cases the eyes will adjust themselves even after occasional imbalances. This condition is more noticeable when the child is ill or tired, or when he looks at objects held close to his eyes. The obvious treatment is to avoid giving him small objects with which to play and never to dangle things close to his eyes. This holds especially for gay colored balls, figures of animals or other playthings suspended from the hood of the carriage. Do not let him hold things with which he can play, as he procures enough eye exercise looking at his hands and feet. A moving object at a distance is the best way of stimulating observation; there is less prolonged muscle excitation and therefore less chance of production of muscle imbalance.

If the eye remains turned almost constantly for a period of from two to six weeks, then consult your oculist. Do not be led astray by some one who tells you that the child will outgrow the condition. This is possible but extremely improbable. In some of these cases the baby has been born with what is called an amblyopic, or nonseeing, eye; but in most cases the power of vision may be stimulated and developed by proper treatment. This treatment usually consists in correcting all visual errors by means of glasses and the added blurring of the better eye to make the weaker eye do more work. Your oculist will go into detail with regard to the needs of any particular case. The main thing is to consult him early and be faithful and patient in carrying out his instructions. The improvements in most cases are not dramatic, for it sometimes takes years to gain the desired results. Do not be swayed by the comments of your neighbors or friends when they tactlessly mention how strange the child appears wearing glasses. You would not hesitate to

R. I. Nesmith

The glare reflected from the water does great harm to the eyes.

have the child wear a brace on a weak ankle, so why should you not give the eye an equal opportunity to better itself?

"What is the best age for operating on a permanently turned eye?" It should not be operated on until all other means have been expended to procure the utmost vision in the offending eye. An eye that is straightened but that does not possess enough vision to produce fusion with the other eye is not liable to stay straight long. It is liable to ramble and probably to turn the opposite way, as there is nothing to make it continue to work with its fellow. If good vision has been obtained, by eye exercises and by the wearing of glasses, the operation may be performed after the age of 6 or 7, if the parents are especially anxious to have it done, as at this time the muscle is fairly strong and is easier to handle. If there is slow but steady improvement in the eye, it is better to wait until the patient is 14 or 15, as the muscle will be stronger and the vision better.

There is one normal condition which gives the impression that one eye is turned. This is true when the center of one eyeball is nearer to the nose than the center of the other eyeball. In other words, the face is not symmetrical, and the impression given by the eye nearer to the nose is a false one. There is nothing to do in such cases.

During your child's first four years, watch his eyes carefully for signs of permanent muscle imbalance.

Sties, or localized areas of inflammation of the lids, are frequent; in fact they are so common that they are disregarded as of any consequence by many parents. Infants may have them, and in that case they are usually caused by rubbing the lid or by malnutrition. In children of the runabout age, sties are usually due to a faulty diet which lowers resistance; but in the child who is old enough to be interested in picture books and small objects, sties may be the first and only indication of eyestrain. If a child has more than one or two sties and is obtaining proper food, it is almost certain that eyestrain is present and should be corrected. The oculist will advise the proper time for the examination. The immediate treatment for sties is the applying of moist heat to the affected lid. Plain hot water is effective enough, as the addition of salts to the solution is often irritating. Sometimes a mildly stimulating ointment helps. In any case the new blood brought by the hot applications is the main factor in the healing process. Apply the hot water for twenty minutes at intervals of two hours when the child is awake. Do not use pressure over the involved area. The condition may clear up by resolution and disappear; or it may localize with pus formation, and this will often break and discharge spontaneously. If it does not and if there is marked swelling and pain, the sty should be incised and drained by a doctor.

Occasionally in children's eyelids there is a condition that the layman often calls a chronic sty. In such a case, a history is given that a sty occurred, came to a "head" and discharged but did not entirely disappear, resulting in a definite swelling in the lid, which is not painful on pressure. This is what is known as a chalazion. It is a cyst caused by the blocking of a gland duct in the lid and is almost always due to eyestrain. Conservative treatment will often clear it up, but sometimes incision and evacuation are necessary.

Persistent flakes or scales on the margins of the lids often lead to the loss of eyelashes and are nearly always caused by eyestrain.

With the advent of the nursery school, children who are extremely young are sometimes using their eyes for close work. Before the child is sent to any school, it is advisable to have an eye examination made by an oculist. Often unsuspected errors in the visual apparatus are discovered at this time. If no error is found, the trouble and expense are compensated for in the knowledge that everything is normal.

If at any time your child has watery or red eyes, becomes irritable and easily fatigued, com-

plains of headache, has periodic attacks of loss of appetite, nausea and vomiting, blinks his eyelids, squints excessively or makes spasmodic movements of his face or body, and your family physician or children's specialist cannot account for the symptoms, it is probable that eyestrain is the cause of the condition. If your child has been going along satisfactorily in school and you are notified that his standard of work is not up to normal, investigate his hearing and have his eyes examined.

Splendid work is being done and innumerable unsuspected defects are discovered by visual tests conducted in schools, but there is a certain condition wherein, although the child can read the proper letters at 20 feet with each eye, he is nevertheless in need of glasses. He could not read similar letters over a long period but has been able to squint so that he can pass the brief test. So, if your child shows any of the many aforementioned symptoms, do not feel that the need of an examination of the eyes has been entirely eliminated simply because you have been notified by the school doctor or by your family physician that the child's vision is normal. An examination with dilated pupils may bring out a latent error of nearsightedness, farsightedness or astigmatism, and the wearing of properly fitted lenses will relieve these conditions.

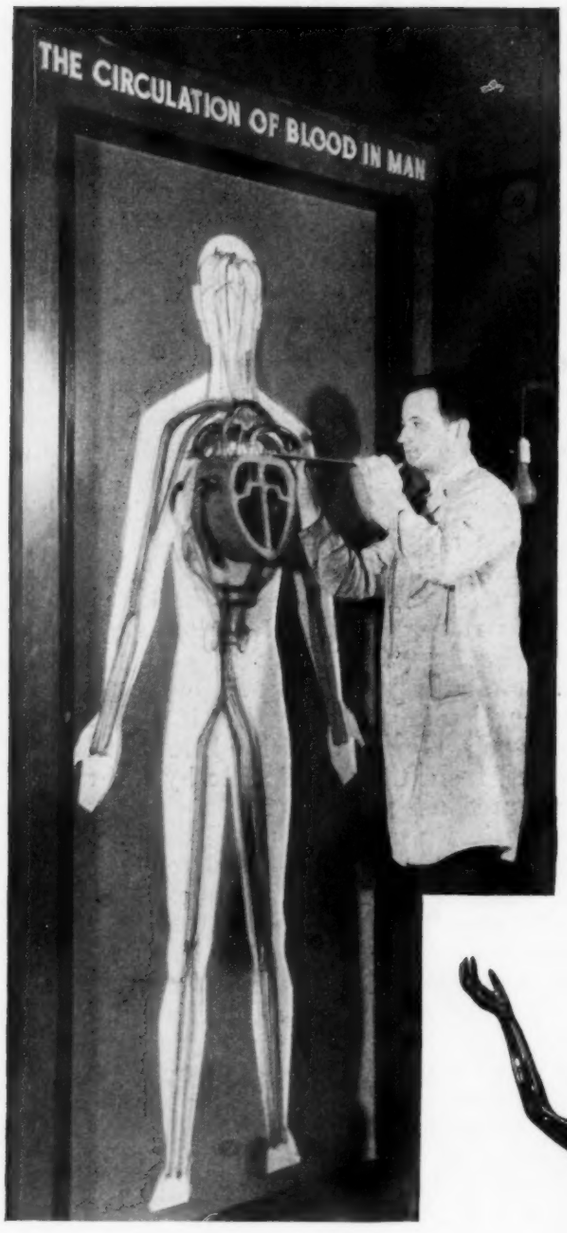
Parents ask whether the glasses should be worn constantly and wonder how long they will have to be worn. It is better to wear the glasses constantly; for the more the eyes are utilized, the better chance there will be for the eyes to correct themselves, and it is quite possible for them to do so. Children of school age should have their eyes examined once a year, and those with turned eyes should be examined every six to ten months. The oculist is better able to instruct as to the time limits than any one else. Many parents have the mistaken impression that if a child once starts wearing glasses he will be obliged to continue doing so indefinitely. This is not true, for the eyes will not tolerate unneeded glasses. In many cases, glasses will act simply as a splint and may be discarded when the condition improves.

Myopia, or nearsightedness, is the most often discussed visual error. It is very disturbing to parents to be told that the new glasses must be stronger, as they naturally wonder why this is so when they have tried to do everything possible to save the child's eyes. Increasing myopia is caused probably by thinning and stretching of the sclera, the strong semirigid tissue which, with the cornea, forms the external coat of the eyeball. It is the so-called white of the eye and greatly determines its shape. In myopia the eyeball is too long. In farsightedness, or hyperopia, it is too short. It is generally believed that excessive close work has a tendency further to elongate the eyeball because of the pressure applied to it by action of the attached muscles in the process of accommodating for near objects. The general physical condition must be kept up to high standard to prevent increasing myopia. A newer theory is that there is a deficiency of calcium in the system and the sclera is not receiving enough of this material to help keep itself rigid. Myopic children should avoid all unnecessary close work and should pursue a supervised outdoor existence as much as possible. Myopic children prefer reading or sewing to outside activities as their small range of vision prevents them from enjoying the world of the others who are unaffected. Whenever possible give myopic children books which have large type and are illustrated by simple pictures.

Many parents fear that a child may break his glasses while at play and thus cause injury to the eye. This rarely happens, and there are many instances in which the eyeball has been saved from ruin because a lens has stopped a flying foreign body. If this fear of the parent is insurmountable, then it is possible to procure so-called unbreakable lenses; but if these lenses are used, the acuteness of vision is lowered 30 to 40 per cent from that obtainable by the use of regular lenses.

The inferiority complexes and defense reactions that may be produced by defective vision are numerous and varied. The effect on the social life may be well illustrated by the case of a frail boy of 4 years who, since infancy, had been considered by his parents to be unusually quiet and backward. The family history was a good one, and the general physical history was ordinary. The child had not done the things natural in a boy of that age, and the parents, believing that association with other children would help, encouraged and almost forced him to play with the children in the neighborhood. His home conduct was exemplary; but his playmates thought him strange, and the parents of these children often wondered as to his mental capacity. He had a habit of peering at everything closely and of using his hands on the other children more than seemed necessary. The subject was often discussed by the various parents; but nothing definite was said or done, and although they all felt that the child was not mentally competent, they did not want to offend his parents by withdrawing their children from his companionship. Things were brought to a head one day when a little girl ran screaming home to her mother. She said that the boy, while playing, had put his face close to hers and then had tried to "bite her nose off." The story spread quickly. There was a hurried conference between a number of mothers; and in their indignation they decided that if the child's parents did not keep him home they would take legal action to have him put in a proper *(Continued on page 664)*

SKELETONS NOT IN CLOSETS

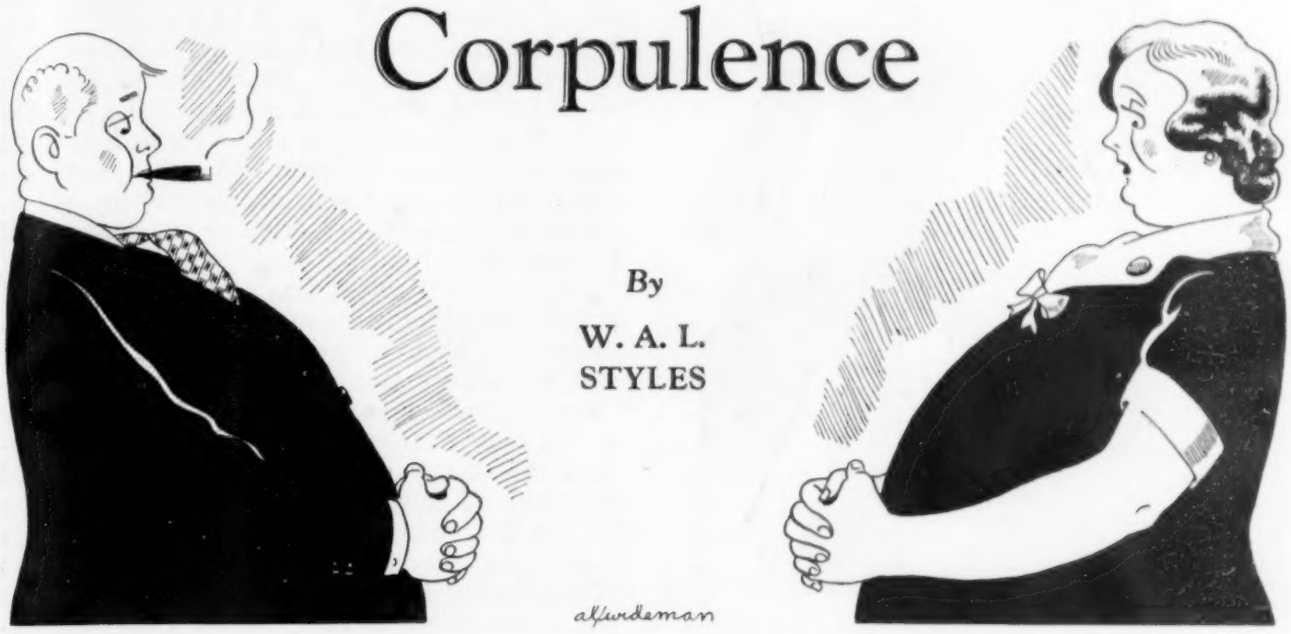


The Hall of Science at A Century of Progress will have 30 per cent more medical exhibits this year than it had in 1933. Among the new exhibits will be the one above, which is designed so that one may trace the circulation of the blood in man. The life size transparent man shown at the right will again be on display this year; the figure is illuminated so that one may see the positions of all the internal organs.

The picture above shows a bone-setter de luxe working on a moving skeleton to get it ready for exhibition in the Hall of Science at the fair. The male skeleton shows articulation of the bones in four movements, including the movement of the chest during breathing.

Photos courtesy A Century of Progress

The Campaign Against Corpulence



By
W. A. L.
STYLES

BY COMMON AGREEMENT, self preservation has been accepted as the first law of nature. Closely allied to this precept, and ranking as a close contender, is the concerted attack launched by a goodly proportion of the population against the accumulation of superfluous weight. Evidence that nature's first law is not universally respected is provided by the death columns of the daily press, while a casual survey of any circle of friends bears testimony to a public laxity in the matter of carrying surplus weight.

Indeed both these objectives are so intimately related that the line of demarcation is scarcely perceptible. So interested has the general public become in self reduction as a form of self preservation that a distinct revolt within recent years has been launched against the triumvirate régime of King Avoirdupois, General Sluggishness and Major Disability.

Illustrating the sway which the protuberant American waist-line has on the public, statisticians have computed the startling fact that, if the excess in abdominal circumferences was measured, it would represent the distance between Portland, Maine, and Los Angeles.

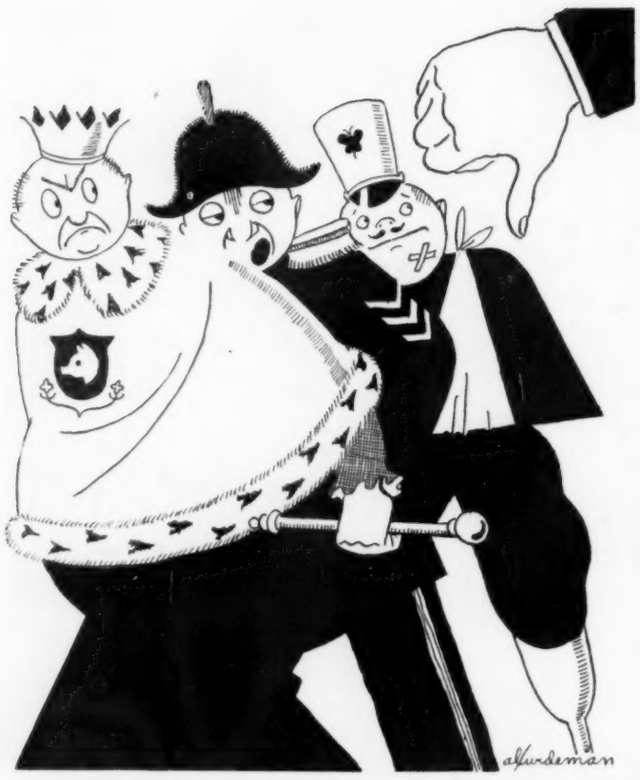
Observers are agreed that obesity is a subject having a widespread appeal among all classes of the population. Since feminine fashions have decreed slender configurations, medical quacks, quick to sense the public pulse, have seen fit to commercialize the fad by selling alleged antifat cures to a gullible public, who have swallowed holus bolus the most preposterous claims advanced in behalf of the most inert remedies.

Despite a laudable resolution to dispense with superfluous fat, America's national weight is diminishing about as noticeably as the allied war debt to this country. The unfortunate part of the situation is that so many obese persons do not go any further in the matter than merely wishing to cut loose from their overweight. When they are finally convinced that action is indicated, there is a general tendency to look around for some panacea which will quickly and easily transform them from uncomfortable and not very stylish "stouts" to sylphlike figures.

The belief that medical science has made it possible for human beings to violate with impunity the laws of nature explains largely why charlatans are continuing to reap a golden harvest in the sale of antifat remedies. For the person who is led to believe all that these quacks tell him in their antifat literature and advertisements, the problem of obesity is the very essence of simplicity.

Yet the medical profession and the disillusioned victims know that this question is beset with grave complexities. Strange as it may appear to the average layman, because of the effect of the ductless glands, which play such an important rôle in the human economy, there is a noticeable difference between persons of the same height and weight when taking the same quality and quantity of foodstuff.

Generally speaking there are three main groups of persons who are interested in fat reduction: plump young girls; older women who wish to remain youthful, and middle-aged men who want to regain their former efficiency.



A revolt has been launched against the triumvirate régime of King Avoirdupois, General Sluggishness and Major Disability.

In addition, there is another class, composed essentially of women who are greatly concerned over the possibilities of becoming stout and who believe in the efficacy of adopting preventive measures.

Overweight may be due either to the failure of some bodily process to function normally or to improper health habits, such as the selection of wrong food, overeating, eating between meals and restricted exercise. When overweight is based on such causes, an adjustment in one's living habits may be all that is needed to bring the weight back to normal. When the cause is not so apparent, it becomes necessary to requisition the services of a competent physician to solve the problem.

The human body has been compared to a furnace which, taking fuel in the form of food, provides the necessary energy for work. Calories, or the fuel values of food, are measured by the amount of heat the body produces; and this varies according to the amount of exercise indulged in and the activity of the thyroid gland, the heat production being greater in the presence of strenuous exercise and an active thyroid gland.

A study of these physiologic facts underlies the three methods by which weight reduction becomes theoretically possible: first, raising heat production by increasing the amount of exercise; second, reducing the intake of food to a point below the daily needs of the body, and third, accelerating the amount of heat produced in the body by taking glandular preparations or drugs.

Antifat remedies may be conveniently classified into two general groups: those that contain drugs, such as laxatives or the more dangerous thyroid extract or dinitrophenol, and are capable of reducing the weight of the body under certain conditions, and those that are devoid of active drugs and are powerless to effect a given loss in weight. A more specific division of remedies employed to attain reduction would classify them as follows: (1) mechanical devices; (2) chemical substances, such as tablets, powders, various prescription nostrums and bath powders, and (3) reducing breads.

Mechanical devices have enjoyed extended popularity among obese persons as adjuvants in treating their overweight. Apart from special apparatus employed by certain exercise devotees, rubber garments have long been sold as the only effective measures for ridding persons of their excessive weight. Unbiased authorities know well that the wearing of rubber girdles, corsets, belts and even chin straps is intended merely to defeat nature's purposes of regulating body temperature by preventing the evaporation of perspiration and that skin irritation often results from this practice.

Seemingly there is no end to the number of tablets, powders and prescription nostrums used in the internal treatment of overweight. If these products contain thyroid extract, they may be effective, by rapidly burning up food and tissue instead of storing them, only at the cost of an increased pulse rate, palpitation, fever, tremors, insomnia and general lassitude. Such a powerful drug should never be employed in self medication as its indiscriminate use has led to serious consequences.

In the absence of thyroid as an ingredient of tablets and powders, their use is to no purpose unless they contain certain drugs capable of deranging digestion and delimiting the assimilation of food. Even chewing gum has been offered as an antifat remedy when containing poke-root, phenolphthalein or seaweed as common ingredients. Poke-root is a poisonous drug liable to provoke convulsions, while, strange to say, seaweed is often used by farmers along the sea coast as a fattening food for hogs.

Many of the so-called reducing bath salts contain nothing more than magnesium sulphate or alum, often marketed in an effervescent form. Directions state that these salts are to be dissolved in a hot bath in which the obese person is to remain for ten minutes each night. The sweating ordinarily induced by a hot bath may temporarily reduce one's weight by the amount of perspiration lost, but it is fairly obvious that a quick return to the former weight is made within a few hours.

There is nothing very efficacious about the self styled reducing breads, which usually approxi-

mate gluten or whole wheat loaves in composition. Many of these breads contain flaxseed or agar, which have laxative effects. So high is the nutritive value of these reducing breads that their manufacturers recommend fewer slices for use than would be the custom if the patient were using ordinary bread.

Thanks to medical progress, there is no longer any mystery connected with the composition of antifat remedies sold to the public. A widely advertised fat reducer was found to consist of toasted bread and thyroid extract. A well known "fruit reducer" proved to be nothing more than a combination of cascara and thyroid. A remedy which claimed to "take off a pound a day in some cases," on analysis was shown to be nothing more than powdered seaweed, the ubiquitous thyroid extract and phenolphthalein, a laxative drug. Truly, the public is not receiving a square deal from the makers and venders of such quack remedies.

Dieting is a commonly advocated and practiced method of reduction. A properly planned reducing diet lessens the intake of calories by restricting the amount of heat-producing foods without affecting the proper proportion of food essentials. It is widely conceded that weight can be controlled by the amount and kind of food eaten without the administration of any medicine, particularly if reduction is carried out under proper medical advice and supervision. The great difficulty of a restricted diet, which often takes the form of a feeling of hunger and emptiness, can be alleviated by large servings of vegetable salads with an occasional egg or a portion of lean meat.

Middle-aged business men, anxious to part with unsightly and handicapping accumulations of fat, little realize that the violent exercise commonly prescribed by many physical conditioners may cause irreparable damage at their time of life.

Greater attention should be given the human body once the thirtieth milestone has been passed, as it has been found that this is the time when most persons begin to neglect themselves. Nevertheless, resigning themselves to the supposedly inevitable, many persons ignore the danger signals of a double chin and an increasing waist-line. Thus, it happens that at 40 years of age so many have reached the discard heap and are thought of as belonging to an older generation.

An overweighted body is like an overloaded truck; something is liable to happen at any moment. Heart strain, impaired digestion and high blood pressure are common sequences of overweight. The weight is a reliable index of the state of a person's mental and physical fitness; general efficiency is seldom, if ever, found existing in overweight persons.

The only safe way to reduce is by dieting along the lines suggested by a qualified physician under whose supervision the treatment is conducted. Proper diet, supplemented by exercises suited to individual needs, brings dividends in the form of health; whereas wrong diet and faulty exercise, particularly when aggravated by objectionable medication, may wreck health and induce premature death.

The safest general rule for superfatted persons to follow is to refrain from eating between meals and to leave the table while they are still hungry. The Adult Weight Conference of America has addressed a timely message to the victims of a too generous poundage who are debating whether they should try starvation, Turkish baths, massage, calisthenics or medication. The warning points out the dangers to health which indiscriminate reduction may cause.

In the ambition to shed weight, men and women have never paused to consider the advisability of misdirected endeavor. As a consequence, death has been the end-result of numerous treatments for obesity. Before launching an antifat offensive, every prospective patient should undergo a thorough physical examination at the hands of a reputable physician and should be careful to follow his recommendations to the letter.

Merely because discretion has not been combined with determination, failure crowns many efforts to regain normality in weight. Weight reduction should be secondary to physical betterment as a goal in the campaign against corpulence. While I should not venture so far afield as to state that the human race is deterio-

If the American waist-line were measured, the excess in abdominal circumferences would represent the distance between Portland, Maine, and Los Angeles.

rating physically, I have no hesitation in declaring that it is becoming overburdened with superfluous weight. The few critics who might possibly discredit this point of view are the underweighted individuals, an insignificant group literally and figuratively speaking.

Life's greatest tragedy hovers about her physical wrecks. The dramatist need no longer have recourse to far-fetched phantasms in order to depict tragedy. What of the man who is stooped, bald and old at 30? What of the young woman whose beauty is masked by overweight? What of that great army of men and women who, forgetful that years alone do not constitute age, say, "I am not as young as I used to be!" These are the real tragedies of the world's stage —these persons who are old, not in years but in body.

HEALTHGRAMS ✣ from Articles in This Issue

¶Statisticians have computed the startling fact that, if the excess in abdominal circumferences in America were measured, it would represent the distance between Portland, Maine, and Los Angeles.

See page 599

¶It should be more widely known that the enamel that is the protecting covering of the tooth consists mainly of two elements, calcium and phosphorus; and if the body is to build teeth that are protected by sound enamel, those elements must be provided.

See page 612

¶In the seventeenth and eighteenth centuries, the victims of smallpox included two emperors, an empress, five kings, two queens, a president, numerous princes and representatives of the lesser nobility, and the celebrated of all nations.

See page 620

¶A leaner mixture and less fuel for the same performance is the basic rule for men as well as motors when the air is hot.

See page 633

¶The mature female bedbug may lay more than 500 eggs; the record is 541.

See page 641

¶Oranges contain 85 per cent moisture, a small amount of ash, 1.2 per cent citric acid, about 12 per cent carbohydrate, a negligible amount of protein and no fat.

See page 616

¶The Manhattan Spastic Clinic, founded in 1932, is the only clinic of its kind in existence and is part of the Neurological Institute of Manhattan.

See page 609

¶During your child's first four years, watch his eyes carefully for signs of permanent muscle imbalance.

See page 594

¶Methods are available at the present time that will surely cure cancer of the skin when it is still only a local disease.

See page 590

¶The essential thing is not what we do during the vacation but the spirit in which we do it. Practically every one, no matter what his problems may be, can spend some of his time in doing some of the things that his soul craves to do.

See page 652

¶In the year ended June 30, 1932, the Bureau of Animal Industry of the U. S. Department of Agriculture supervised the slaughter and inspection of 77,200,091 animals, at an average cost of about 7 cents for each animal.

See page 623

¶At the present market value the nondestructible portion of the average human body, or the bone ash, would be worth less than $1.

See page 630

¶From 40 to 45 per cent of all persons killed and injured in automobile accidents are pedestrians.

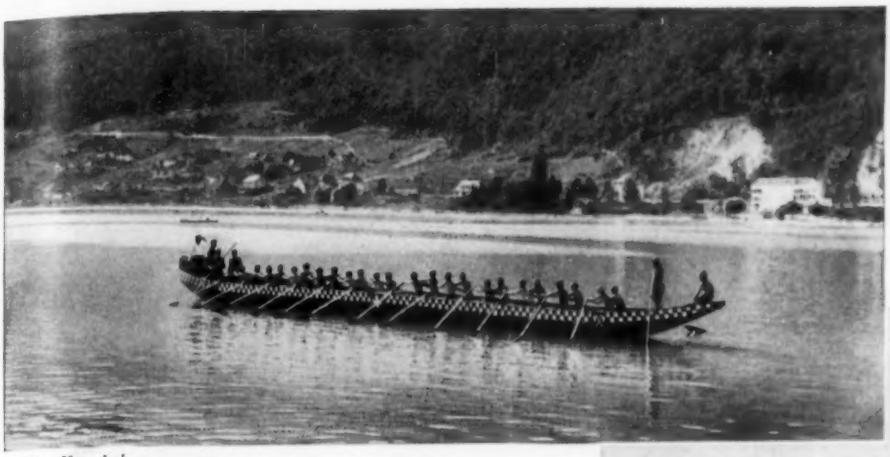
See page 586

¶A vacation is not a vacation unless you have a complete change of scene and activities from your usual routine.

See page 644

¶Directly beneath the ice chamber or cooling coils is the coldest spot in the refrigerator.

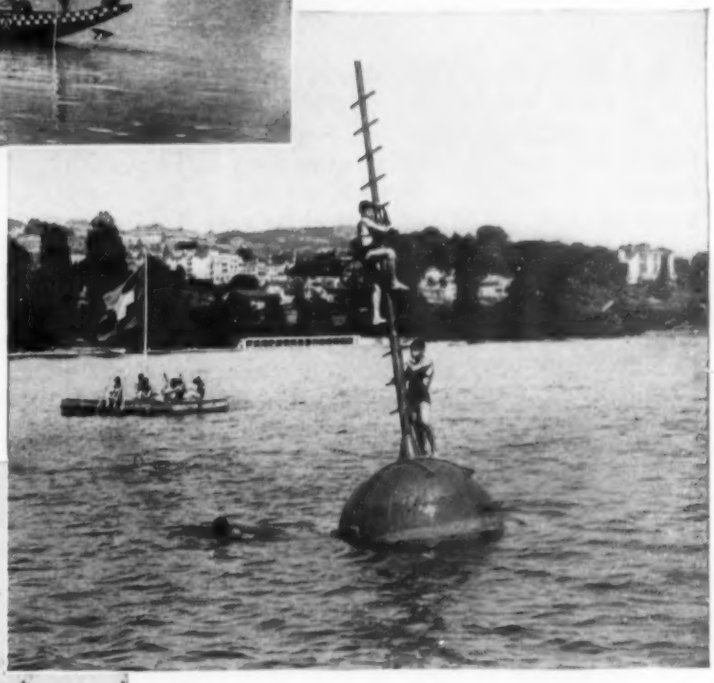
See page 626

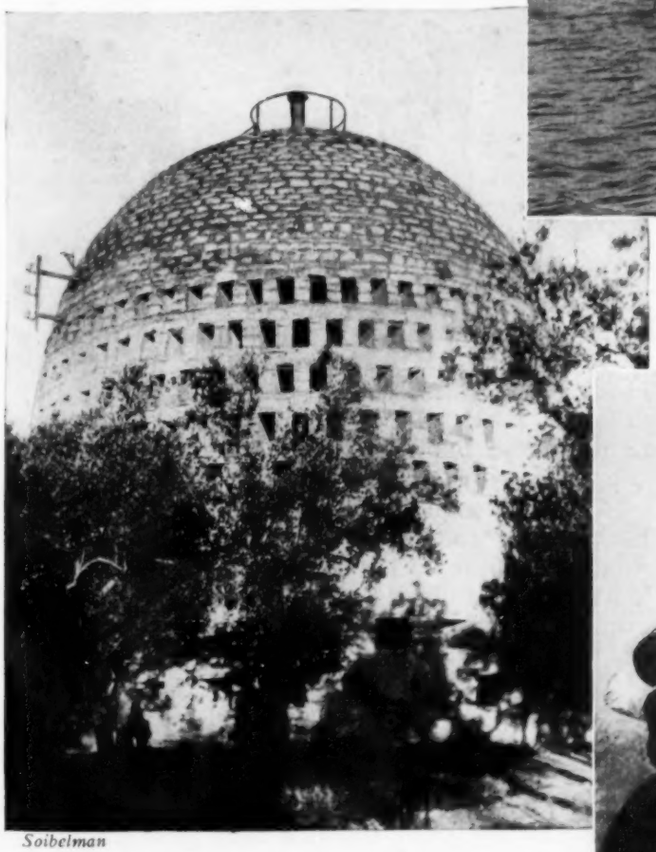


Fritz Knuchel

School boys of Bienne, Switzerland, are taught rowing in a boat reminiscent of the medieval galleys. Educators are watching this physical education experiment with interest.

The "swimming ladder" below provides fun for bathers at the lavish bathing beach at Lausanne-Ouchy on Lake Geneva, Switzerland.





Soibelman

A fountain that collects water from the air solves a problem for hot and waterless regions. The one shown above was constructed at Tarn-en-Provence, near the Mediterranean. It is 40 feet high, has sides 7 feet thick and a roof 14 feet thick. There are 3,000 slates inside on which the condensed vapor produced by the difference between night and day temperatures collects.

English and American women both find lacrosse good exercise. Teams from the two countries recently gave an exhibition at St. Mary's Field, Garden City, L. I.

Keystone

The Spite Fence

By

LUCRETIA PENNY

AS MISS JACKSON drove up the rutted red clay lane to Al Caffy's house, she was regretting that she had heard anything about the man. It would be so easy to face with confidence the interview before her, if she knew nothing of Mr. Caffy save that he was the father of an undernourished 10 year old girl.

Unfortunately she knew more.

Even Granny Harvey had been pessimistic about him, shaking her head sorrowfully. "He's lived up this here hollow a year come corn gatherin', an' if he's swapped a friendly look with man or dog, I got the first to hear about it."

Mrs. Irving Bracken had had an incident to report. "Right after he moved in I ast him one day, just makin' talk to be friendly, how long had his wife been dead. He told me, an' you know me well 'nough to know I ain't makin' this up, Miss Jackson, he told me to shut up. I can't mock how short and hateful he said it; like he couldn't hardly keep from smackin' me down. Mis' Talithy heard him."

Her stepmother had nodded in agreement. "I heard him. He's the kind that ought to build a spite fence plumb 'round his place same as men ust to, way back yonder. Not wantin' to put in on what's your business, Miss Jackson, but it does seem like they ought to be some that even a county nurse could draw the line at mixin' with."

"But there's Angie."

"Yes, there's Angie. And would he let a body raise a hand to do for her? Her goin' to school in dresses so outgrowed that the belts of 'em's likely to saw her arms off, an' me messin' 'round all winter knittin' lace to keep myse'f busy! But would a man like Al Caffy hear to me piecin' out them dresses or makin' her new ones? Law no, he wouldn't. It'd be killin' time to name it to him."

The teacher of the rural school had called Miss Jackson's attention to Angie when the nurse stopped in to say good-by on the last day of school. "I suppose there's no use asking you to visit her home—her father would only tell you to mind your own business—but she's been losing weight, and she seems so tired."

The Caffy's place itself seemed tired, Miss Jackson thought as she stopped her car before the unpainted three-room house. The rail fence enclosing the weed-choked yard sagged wearily, as if the weight of the blackberry vines that leaned against it was too much for its strength. A spite fence should have a more aggressive look, Miss Jackson thought whimsically.

There was no relaxing of his grimness. He spoke above the rasping sound of stone against metal.

Then she saw the dog. He came snarling from beneath the porch and limped half way down the crooked path that led to the gate. He was large and brindled and bristly, a not unsuitable mascot for a man "without a drop of neighborly blood in him."

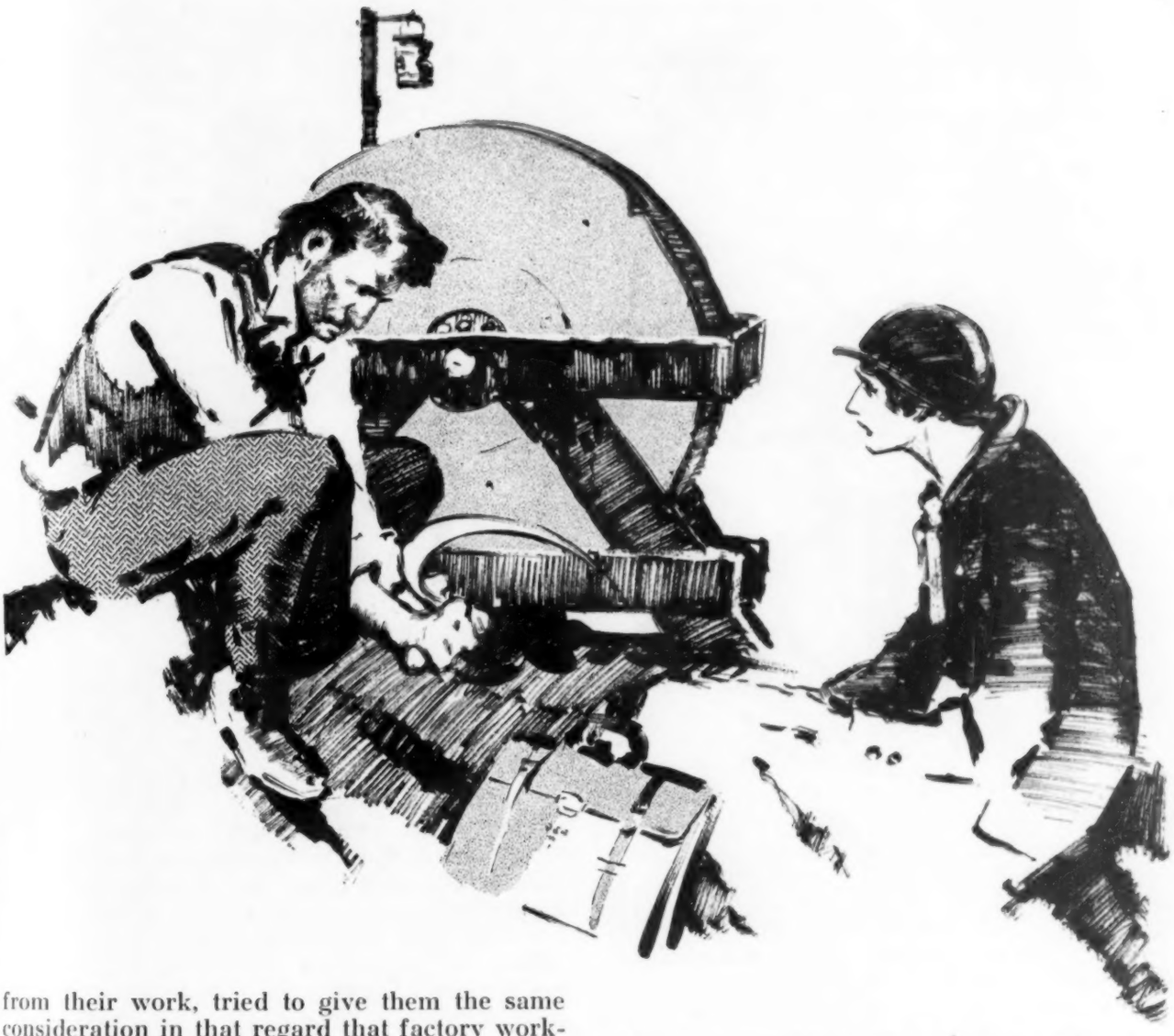
Miss Jackson was frankly afraid of dogs. She had hesitated before much more agreeable ones than this. She paused now with her hand on the car door.

A thin, dark-eyed girl, dressed in an embroidered gingham outgrown by at least two years, came around the corner of the house. Her dark hair was divided by a part as crooked as the path the dog was guarding. Her dark eyes met Miss Jackson's uncertainly, almost fearfully. "The pore little thing has shore got a mammyless look," Granny Harvey had said.

"I hope your dog isn't as unfriendly as he seems, Angie," Miss Jackson called pleasantly.

"You better not get out until I tell Papa," Angie advised before she darted back in the direction from which she had come.

It was not, Miss Jackson felt, a good beginning. She always tried to avoid calling farmers



from their work, tried to give them the same consideration in that regard that factory workers would expect.

Mr. Caffy did not come at once. She had begun to wonder if he intended to come at all, when at last he appeared. He came down the path to where the dog was and waited there without nodding or speaking.

He was a tall, stooped, sandy-haired man, unshaven for perhaps a week. A scowl drew his bushy eyebrows together over eyes that were dark like Angie's. "I've saw mean men by the wagon load," Irving Bracken had once said, "but I got yet to see one can give you a meaner look over nothin' than Al Caffy can."

Well, it didn't matter now what she had heard. Even if the neighbors had never mentioned him, she would have known when she saw him that Mr. Caffy did not welcome her visit.

"I was afraid of your dog," she began.

"You'd as well's to be," he told her curtly.

She saw that there was no use in trying to lead up to her subject by friendly small talk. He was plainly waiting for her to state her business.

"I'm Miss Jackson, the county nurse, Mr. Caffy. I came to talk with you about Angie."

He gave no sign that he had heard except that his scowl deepened.

"Suppose I back my car into the shade," she went on. "You won't want to stand there in the sun while—"

"What time you're talkin' to me the sun ain't goin' to fade neither one of us none," he interrupted sharply.

She smiled, as if she did not sense his hostility. "No, it needn't take long. I just wanted to tell you about the clinic they're holding on Saturdays at the court-house and to—"

"Listen here," he flared, "I know enough about them chest clinics to run one. I know everything there is to know about 'em, from their weighin' scales to them little books they give you to tell you how to scald dishes and boil bed sheets and make screens out of tobacco canvas and barrel hoops." He turned toward the porch and without looking back called, "Now go to thunder—you and the hull county."

The front door slammed on its one hinge before Miss Jackson recovered from her surprise.

"You ain't got no right to bring all that up. You got to shut up."

She got out of the car, not without fear, and went up the crooked path to the porch. The dog had gone back to the shade, but he rose again and came to stand snarling and growling before her.

She forced herself to go on. Surely Mr. Caffy would not let the dog do her any serious injury. Still snarling, the dog limped aside to let her pass. She hoped that it might be a good omen, an omen that barks were worse than bites in this place.

Through the screen door she could see the man sitting before the empty fireplace, his head in his hands.

She knocked on the door casing. "Mr. Caffy, I'm serious about wanting to talk with you. If it were anything less important—"

He drew the sleeve of his blue shirt across his eyes before he turned to interrupt her.

"I won't hear nothin' you got to say," he roared fiercely.

"Then perhaps you'd—"

"I won't nothin'," he retorted. "Ain't nobody told you who I am? There's been plenty talk about it."

"No one has," she said.

"Well, I'm tellin' you now. I'm the meanest man ever set foot in this hollow. Ask anybody. Now get out."

She went back down the path past the snarling dog, got into her car, waved to Angie, who was peeping timidly around the house, and drove away.

There were two kinds of problems in her work: the ones for which training and experience had provided the answers, and the ones that challenged her to find a way to solve them.

If she could have Mr. Caffy's cooperation, the solution to Angie's health problem would probably be fairly simple. She had noticed that there were chickens, a garden and a cow. There was plenty of sunshine, surely, and fresh air. All these were assets if they could be used, and Mr. Caffy certainly seemed intelligent enough to make use of them.

During the next few days she skilfully guided a number of conversations around to the subject of the Caffys. She heard incident after incident illustrative of the man's "offishness" but nothing to throw any light on the cause of it or on his history before he moved into the hollow. She wrote to Angie's teacher, asking where the child had previously been in school.

By the end of the week she had but two clews to the riddle she needed to solve. One was Mr. Caffy's assertion of familiarity with clinics, and the other was the name of a school in the factory district of the nearest city.

Vacation time made it difficult to obtain any information from the school. She arranged a crowded schedule so as to have time for a day in the city, a day in which she consulted the social service exchange, the records of the visiting nurses, the superintendent of a day nursery and the social worker at the tuberculosis hospital.

The morning after her return she again drove up the rutted lane to Mr. Caffy's. He was sharpening a scythe at the foot power grindstone in the side yard, and he did not hear the car approach.

Miss Jackson went past the snarling dog—perhaps he, too, had cause for his unpleasantness—and back to the grindstone.

The man raised his head and scowled at her. "You needn't come here," he said shortly.

She sat down on a log near the woodpile. "I was in the city yesterday," she said, "and I saw some old friends of yours. I had lunch with Mrs. Smithsen at the day nursery. She sent her love to Angie. She spoke of how much the workers at the nursery had enjoyed having Angie and her little brother there, because they were children who'd had good care and training at home."

There was no relaxing of his grimness. He spoke above the rasping sound of stone against metal, "I guess you mighty quick got her told how Angie's making out now."

"No," she went on quietly. "I didn't. We talked about other things, about your home a few years ago when Angie's mother was living, before your little boy was killed, before the last baby was born. Mrs. Smithsen said she'd thought of you so often and wondered if you ever got the place in the country you and your wife had planned for so long."

He jerked his head disdainfully toward the house. "Planned for a place like this, I guess you think."

"No," she replied, "very different from this, I think, but with a yard for the children, a place for chickens and a cow and a garden and flowers."

He let the stone come to a stop and turned to her angrily. "You ain't got no right to bring all that up. You got to shut up."

Miss Jackson's voice went on evenly. "You could plan for such a place, of course. You'd both grown up in the country and had always wanted to be back; you had a good job and a chance to save toward buying a home; you were all well. That was before the third baby was born. He was never strong, and there was extra expense during the year that he lived. Then the factory where you worked cut you down to three days a week. Your wife went to work to help out and put the two children in the day nursery. The little boy was struck by a car at the street crossing."

He caught his breath between clenched teeth. "Tellin' me all that, like I didn't know! You got to shut up, I tell you."

"Miss Akin at the tuberculosis hospital is a friend of mine," she continued. "She was telling me how much they thought of Mrs. Caffy there, how anxious both of you were for her to do just what the doctors advised, and how cheerful and hopeful she was. Miss Akin remembered how, in spite of all the troubles you'd had, Mrs. Caffy seemed always to look forward rather than backward, to plan for that home in the country with Angie and you. She embroidered little dresses for Angie and counted the days until you and Angie could visit her."

"And her insurance money bought this shack for Angie and me," he said bitterly.

Miss Jackson nodded. "After you had lost your job and couldn't find another."

"You ought to told Miss Akin how I'm the meanest man ever set foot in this hollow."

"She wouldn't have believed me. She'd have known that if you'd changed that much it's just a temporary change. She'd have understood that people sometimes wear masks like that when they've been too hurt to feel that they can stand anything more. She'd have known what my visit the other day meant to you, how you'd lived in dread of having some one call your attention to the fact that Angie, all you have left, isn't well."

"Ain't only that," he said, "but I done the best I could for the rest of 'em, and look how it turned out."

She nodded. "Knowing that, Miss Akin could have understood, as a stranger couldn't have, why you might have been tempted to give up trying to do your best, but she would have known that you wouldn't give up!"

He put down the scythe and sat staring out across his neglected yard. "A man can have trouble loaded on him till he ain't noways like hisse'f, till he don't want to be spoke to or looked at. He gets the name of bein' onery and offish, and he don't care if he keeps it."

"It's probably like that oftener than we suspect," she agreed.

He sighed wearily and was silent for a moment. Then he said, "Miss Akin was sure nice and friendly to us. So was Mrs. Smithsen, and there was a visitin' nurse name' Miss Bell was awful nice and the neighbors. . . . I ain't got a neighbor now. . . . Angie's mamma would sure hate that."

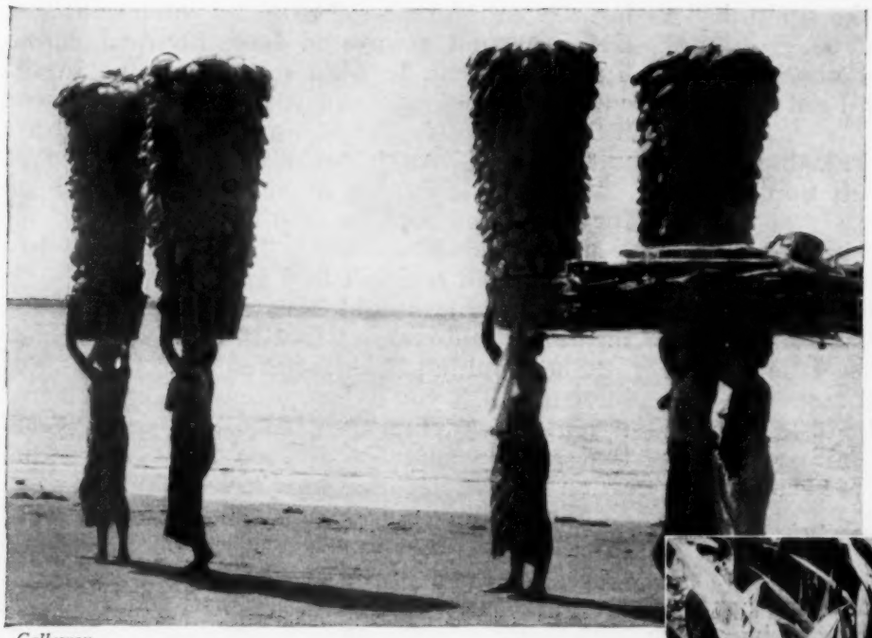
"Your neighbors here will very quickly forget that you didn't want to be friendly at first, now that it's all over," she assured him.

He bent over and pretended to examine the blade of the scythe, testing its edge with some grass. "The way I been feelin' ain't never goin' to be plumb over."

"Perhaps not," she agreed. "Perhaps nothing ever is, but the worst will be over when you have neighbors again. Shall we talk about Angie now?"

"I'll have her to the clinic Saturday," he promised. "I reck'n there'll be somebody goin' in we can catch a ride with. And I'll do what the doctors says. I reck'n you see I ain't been doin' as well as I knew to. . . . Kind of funny how you'd run into them two that knew me when I was."

FOOD
from foreign farms



Galloway

Bali Women furnish local color for tourists to this island near Java by carrying copra, or dried coconut, on their heads. Women do most of the work in Bali.

Thompson

Java The picture shows a seed bed for developing coconut palms.

Galloway

Madagascar The scene above shows how vanilla beans are dried in one of the world's principal sources of spices.

Holland Edam cheese is brought to the weighing hall at the celebrated market at Alkmaar.

Thompson

In the Manhattan Spastic Clinic the children learn to talk by watching their lips and tongues in mirrors.

Manhattan Spastic Clinic

By *Vivian Washburn*

A LITTLE GIRL is crying. It is 4 o'clock in the afternoon, and she has been waiting with her mother for more than three hours outside the door of the clinic room. As the tears fall faster and faster, she tries drying them with a handkerchief clutched in one little thin hand. But her hand shakes, and her arm trembles. It is with great effort and many jerking gestures that she succeeds in drying her eyes.

Birth Injury May Cause Muscular Inefficiency

If 9 year old Elsie was not so interested in herself, she might notice the other boys and girls who are sitting on benches around her, waiting their turns for clinic treatment. There are at least fifteen others, and their ages vary from 3 to 16 years. There seem to be an equal number of boys and girls, all of whom apparently are suffering from the same handicaps. Their movements are peculiarly alike, and there is a similar tenseness in their bodies. The exaggerated motions of the arms and legs are strangely characteristic of each patient; and each, with the exception of the 3 year old, appears to be cruelly conscious of his uncontrollable body.

Neurologists and pediatricians, after years of study, have attributed these muscular inefficiencies to small hemorrhages in the brain at birth. A child who has been injured in such a way is frequently incapacitated for life because these hemorrhages have injured parts of his nervous system. This injury to the nervous system renders a child unable to control his muscular movements. He is often believed to be mentally defective while in reality he may be of normal intelligence.

Muscles, Mind and Nerves Must Be Coordinated

The clinic director himself was injured at birth in this way. His injury was cerebral spastic diplegia, known clinically as Little's disease. In describing the affliction he likens the mind to a telephone switchboard. The message of the board or mind is flashed; and though it is understood by the communicating wires of the muscular and nervous systems, the command cannot be carried out because of a break-

down somewhere along the line. The machinery is in working order, the power is there in excessive amounts, but proper delivery is impossible.

When the brain of such a birth injured child commands the hand to grasp something, the arm wanders aimlessly about before the hand touches the object it has been seeking. Once the fingers have closed about the object, they may remain fixed in that position, and it is with great difficulty that they relax. This excessive energy may enable the patient to move about after a fashion, but walking for him is nothing more than a series of lurching, jerking or writhing movements. Speech is often difficult. If this is the case, profuse salivation is evident. Accompanying this drooling is a looseness of the mouth muscles which lends an expression of imbecility to the face of the patient and leads to his being mistaken for an idiot or a feeble-minded person, while his mind may be as keen and alert as that of any normal person his age.

Reeducation Is Not Possible in All Cases

There are similar cases evincing like muscular characteristics in which the mind as well as the body is disabled. In such instances, muscle education promises little or nothing. It is only when the mind remains unimpaired that the possibilities of reeducation are unlimited.

The Manhattan Spastic Clinic, founded in 1932, is the only clinic of its kind in existence and is part of the Neurological Institute of Manhattan. Here efforts are being made to reeducate boys and girls and adults whose lives have been restricted, unhappy and unproductive because of this unfortunate birth injury.

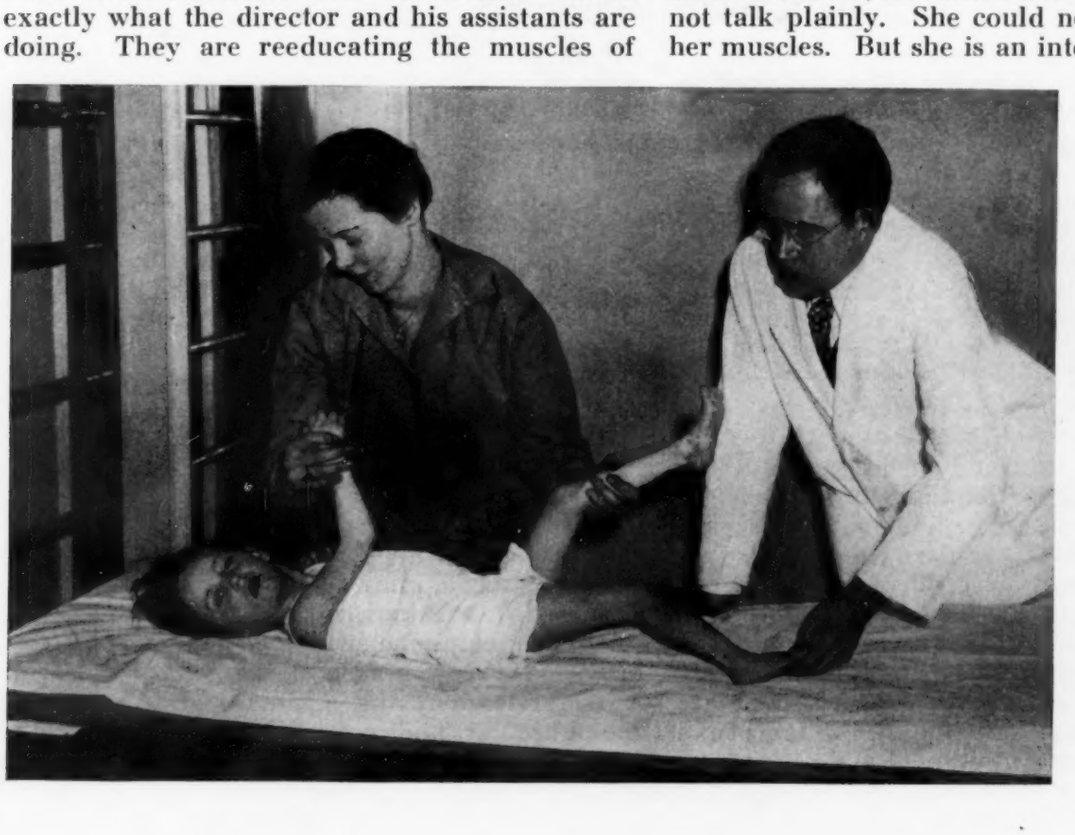
The term reeducation is used because that is exactly what the director and his assistants are doing. They are reeducating the muscles of children and adults who have fallen into unconventional body expressions because of their muscular handicaps. They are attempting to aid the patient in controlling his excessive energy so that he may learn to use his arms, legs and hands in a more normal and less conspicuous manner.

Patience and Persistence Bring Progress

For example, one of the first things the patient is taught to do is to walk, using his heels and his toes in the process. Instead of moving in a cross-legged fashion and allowing his toes to scrape along the floor, the patient soon learns to plant first his heel and then his toes to acquire the forward motion. A great deal of time and effort are required on the parts of both the patient and the teacher before any actual progress is seen.

An actual visit to the clinic will show clearly the amount of patience and determination that is necessary for successful results. Elsie, for instance, forgets her fears in the excitement of seeing for the first time what is on the other side of the clinic door. She notices a little girl lying flat on her back on a long table on the far side of the room. The child is raising alternately her arms and her legs high into the air and numbering aloud each movement. Each motion is slow but steady and smooth. There is no jerkiness or tenseness in her body. While she rests every few moments, she smiles and jokes about how long it will be before she is able to turn somersaults.

The little girl is 11 year old Nina, one of the clinic's earliest patients. When she made her first visit there, she could not walk. She could not talk plainly. She could not control any of her muscles. But she is an intelligent child and



Through careful reeducation of the muscles the director and nurse help the child to use his arms, legs and hands in a more normal and less conspicuous manner.

is determined to become adept so that she will be able to attend school regularly and play with other children her age. After seven months of hard work, she is able to walk a straight line without any effort whatever and to speak as clearly and as distinctly as any normal child. Her proud mother reports that she is learning now to sew for her doll.

A little boy sitting on the edge of another table attracts Elsie's attention. Three year old Bernard does not quite understand what the nurse means when she tells him to relax, but he does understand clearly when she promises him chocolate if he tries hard to kick his feet and to raise his knees up to his chin. Bernard is not much more than a baby, but he does so enjoy hearing the nurse recite his favorite nursery rhymes while he is moving his arms and legs about that he strives to please. He wants Jack and Jill to continue going up the hill for water as many times as possible.

Bernard is more fortunate than some of the others. He had no difficulty in learning to talk or to use his arms, but the muscles in his legs are afflicted. When he received his birth injury, fortunately only one group of motor centers was affected. It will be a comparatively easy task for him to teach his leg muscles to work properly. Until he is old enough to develop a will and a determination to command those weak muscles, chocolate and nursery rhymes are wise substitutes.

Elsie is so much interested in the activities of all the other patients that she has to be called twice before she responds to the nurse. When finally she tears her eyes away from the amazing spectacle of Nina tying her own shoe laces and hopping down from the table without any assistance, she is ready for her own treatment.

At first she is shy and embarrassed because she is so awkward. The nurse, who is as much a psychologist as she is a nurse, takes little Elsie over to the window and in the most friendly and unprofessional way discusses the boats on the Hudson River and the funny house tops and the bright colors in the huge pencil on the billboard across the street. Presently Elsie is smiling and quite at ease. Now the real work begins.

Muscle Reeducation Requires Mental Relaxation

According to the director, the first secret in muscle reeducation is to teach the patient relaxation; for if the patient is in a disturbed mental state due to embarrassment or fear, it will be infinitely more difficult to teach him the corrective exercises. The patient will try to obey, but his emotions and that overflow of muscle energy frequently will throw his body into a chaos of writhing movements.

Now that she has won Elsie's friendship, the nurse quietly and in a business-like manner teaches her the rules of walking. "First the heel, then the toes. Slow-ly. Heel, toes. Heel, toes. Slow-ly. Heel, toes." Almost magically Elsie responds to the calm encouraging tones of the nurse's voice. Little by little her body relaxes as she concentrates on her feet.

But the walking exercise does not last long. The greatest precaution is taken to avoid tiring the patient. After a short rest, Elsie is placed on the plymph, a treatment table which is longer and wider than the regular operating table.

In the same quiet, friendly tones the nurse teaches Elsie the arm and shoulder exercises. First the nurse moves Elsie's arms about for her, then Elsie moves them herself, all the while gaining more confidence in her own ability.

While she rests after the plymph exercises, she watches an older girl who is learning to talk properly. Elsie is fascinated with the tongue and mouth exercises the patient is doing. She is amused and laughs aloud at the queer faces the patient makes at her reflection in the mirror. When the patient says a word unusually distinctly, all the others smile with pleasure and offer words of encouragement. Elsie is eager for some of this encouragement, too, so she assures the nurse that she is quite rested and is ready for more exercises.

Success Brings a New Happiness

This time Elsie sits on the edge of the table. First she swings her legs back and forth, striving to acquire the even smooth swings made by a normal set of muscles. Then she tries raising her arms high above her head, but this is hard. Her arms jerk, and she loses her balance. A wave of shame covers her thin face, but the nurse ignores her embarrassment and instructs Elsie to do with her hands and arms what the nurse is doing with hers. Elsie must keep her eyes on the nurse's arms and must move her own.

The nurse starts the exercise with her fingers lying loosely on her knees. Slowly, slowly, the nurse wriggles her fingers and raises her arms. Finally when the nurse's arms are above her head, she laughs and tells Elsie to look at her own hands. There they are far above her head. They are still and relaxed. This evidence of her own ability is too great a shock for Elsie. Her arms drop heavily; her body shakes, and she is overcome with a new happiness. The nurses gather around the newest patient and congratulate her. Elsie is rewarded with a piece of chocolate and is invited to attend the clinic again the next week. With her face wreathed in smiles, Elsie hurries off home to tell her daddy all about it.

The director and his nurses have succeeded in making the atmosphere of this spastic clinic an unusually happy one. The patients forget their fears of being awkward and lose themselves in the thrills of new muscular feats. They enjoy the success of their fellow patients as much as they do their own.

Save Your Child's Teeth!

THE QUESTION, "What can I do to save my daughter's teeth?" came as the immediate reaction of a mother when she was informed that her daughter required a great deal of dental work.

"I have repeatedly taken Gertrude to the dentist," she added. "Ever since she was 4 years old, she has received dental treatment frequently. Now you tell me one of her permanent teeth is abscessed. It doesn't seem possible that she has to lose one of her second teeth when she is only 8 years old."

How Much Care Is Necessary?

Undoubtedly, many parents have had the same experience and the same reaction. After taking the measures they thought sufficient to protect their children's teeth, they are surprised when their dentist breaks the news that permanent teeth must be lost. Dentists, day after day, find mothers chagrined by the fact that their children's teeth are badly decayed or that teeth must be extracted.

This mother was affected to no little degree by the diagnosis, yet her attitude was one worthy of admiration. Hers was not the helpless resigned manner but one of intention and determination to avoid the future loss of teeth if it were humanly possible to do so. It would be well for all parents to view this matter of dental conditions in a similar manner.

Naturally, I was glad to help this mother in her desire to save her daughter's teeth. I offered her a chair near my desk and prepared to discuss the question with her from all angles.

"Just what have you done in the past to protect Gertrude's teeth?" I asked her.

Her reply was the one so frequently given: "Whenever she had a tooth that bothered her, I took her to the dentist."

"Nothing else?" I asked.

The answer was, "No."

This mother's answer was the one I had expected, since few persons adopt the measures necessary to prevent dental disease. I informed her that the first step would be the removal of the infected teeth. The lower permanent molar and the three temporary, or deciduous, teeth were beyond treatment and were to be extracted. Several decayed teeth needed fillings. Two of the "baby teeth" that had to be extracted would not be replaced for several years. It was therefore necessary to insert what dentists call space maintainers. In addition, prophylaxis, or cleaning, was necessary. However, the point to emphasize is that actual preventive procedures were required.

The Proverbial Stitch in Time

"That's where you have failed before," I told this mother. "You have asked me to tell you how to save your daughter's teeth, and my opinion is that having the needed dental operations performed is merely the first step. Filling carious teeth restores the affected teeth to a healthy condition; extracting teeth prevents them from deleteriously affecting systemic health."

Most authorities recognize that dental decay is a symptom of malnutrition; in other words if

By J. M. WISAN

Ewing Galloway

one shows susceptibility to dental disease (the layman would say he has soft teeth), undoubtedly one is suffering from some type of malnutrition. This is a fact that is not recognized by many parents. Too frequently, teeth are considered not as vital living parts of the body but as separate entities.

It should be more widely known that the enamel that is the protecting covering of the tooth consists mainly of two elements, calcium and phosphorus; and if the body is to build teeth that are protected by sound enamel, those elements must be provided.

Certain Foods Aid Development of Teeth

Also certain accessory foods, vitamins, are required to aid in the assimilation of these minerals. Of course the body must be functioning normally if the foods are to be utilized.

The more important foods that help to meet these requirements are listed in the accompanying table. This is by no means a complete list of foods; it is merely a catalog of the most important foods affecting the development of the teeth. Children should obtain these foods in adequate amounts.

The Most Important Foods Affecting the Development of the Teeth

Sources of			
Calcium and Phosphorus	Vitamin A	Vitamin C	Vitamin D
Milk	Cod liver oil	Orange	Egg yolk
Eggs	Butter	Lemons	Cod liver oil
Dairy products	Milk	Tomatoes	
Whole grain cereals	Cheese	Grapefruit	
Meat	Carrots		
Fish	Spinach		

A child who shows by the condition of his teeth that he is susceptible to dental decay may be suffering from malnutrition. Degeneration of the teeth is a sign that something is wrong with the functioning of the body. A physician's advice and treatment are indispensable, for he may discover the faulty condition and help to correct it. He will check up on the diet, suggesting the foods and treatment that are necessary.

Many cases have been benefited to a great degree by alteration of the diet and improvement of health conditions. A little girl, 7 years of age, had three permanent molars that required extraction. Only a year after their eruption, those teeth were so badly decayed that they were beyond redemption. The child's

Looking Forward

Mornings, when I'm dressed beneath,
I squeeze some paste and brush my teeth;

And always, after lunch, I go
And brush again—above, below;

Then, just to keep them clean and white,
Of course I brush some more at night.

When I am six, and lose a few,
I shall not have so much to do!

—BEATRICE CREIGHTON.

health was poor. She was highly irritable, suffered from insomnia, was underweight and had a sallow complexion. Her school reports showed that her work was far below par. While her teeth were being treated, the mother was advised to take her to a physician. The changes that were brought about in that child's condition by proper care of the teeth and by the treatment rendered by the physician were amazing. She became a different child, the happy tot in whom every mother glories and takes pride.

The point is that by realizing that dental disease is an indication of other abnormalities, measures to improve systemic health conditions can be adopted.

While discussing the subject of food and health, it might be well to suggest that every parent should study this question of diet by reading authoritative books and health magazines. It is well to know how milk and other healthful foods aid in the formation of sound teeth and the promotion of health.

Regular Examination Is Tooth Insurance

The next important measure to be adopted is the habit of taking the child to the dentist regularly. Do not wait until the tooth aches. It is no exaggeration to say that tardy attention has caused the loss, the avoidable extraction, of more teeth than has any other factor. The discovery of cavities when they are small and before they penetrate into the inner parts of the tooth means treatment that is quicker and less unpleasant and fillings that are more permanent.

There is another factor that should be considered. The frequency with which teeth erupt with defects in the enamel is not realized by most persons. These defects are in the nature of small openings, cracks or concavities on the tooth surfaces. Dentists call them pits and fissures, and they discover them by the use of sharply pointed instruments. The dentist goes over the surfaces of the teeth carefully; and if these instruments, the ends of which resemble pin-points, catch on a tooth surface, it is certain that at that point there exists a defect. If the sharp point sticks, it is quite evident that food débris will lodge there and will eventually cause decay. Research in preventive dentistry has proved that a large proportion of teeth have these defects. Teeth that are frequently examined for these defects and are protected by proper treatment can be saved in almost every case.

Of late years, particularly since it has been discovered that diet influences mouth health, there has been a tendency to minimize the importance of brushing the teeth. The opinion has been expressed that, since teeth decay in spite of tooth brushing, the brushing should be dispensed with as futile. Many reports have been brought to my attention that this theory is being enunciated by some so-called authorities.

The trouble has been that the brushing has been carelessly done. Most persons take little time and give less thought to the brushing of teeth. Certainly, this has done little good, but if one is careful actually to brush every surface of every tooth, between the teeth as well as on the exposed surfaces, food will not lodge around the teeth to cause halitosis and tooth decay.

Children should be taught the proper way to use the tooth-brush. Dentists and school teachers are assuming the responsibility of informing them on this subject. They advise the use of a small brush with spaces between the bristles. This type of brush enables one to brush thoroughly the more inaccessible surfaces of the teeth and to keep the gums in healthy condition.

It must be remembered that almost every child requires supervision in all health practices, and tooth brushing is no exception. Parents should be certain that children brush their teeth before going to bed, on arising and after every meal, if it is at all possible.

It should be stressed that the child should assume the responsibility of caring for his teeth. If the teeth are to be saved, the child must cooperate. The child must eat the proper foods, adopt the other necessary health practices, visit the dentist with the proper attitude of mind and keep the mouth clean. Modern educators realize that telling the child of the necessity of these measures is not enough. This information must be given to each child in such a way that he will willingly and on his own initiative adopt the measures that are necessary to protect the teeth.

Parents and Teachers Must Cooperate

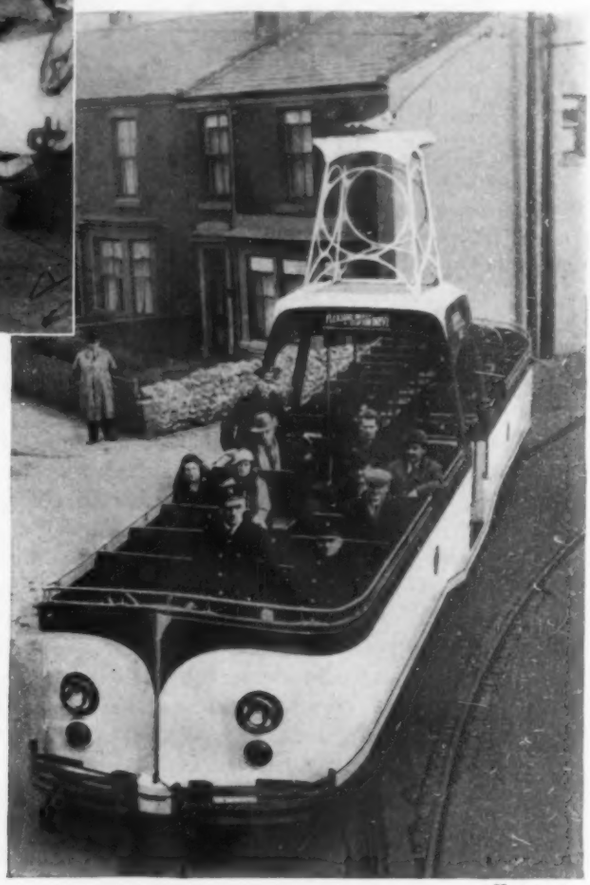
Many school authorities include health education activities in their programs, but they are handicapped in presenting this information. Most teachers have large classes to consider, making it difficult for them to deal with the attitude of the individual pupil. The method that may be effective with Mary, for instance, may not convince John of the importance of drinking milk. So it is necessary for the parent to cooperate with the school by intelligently imparting health information to children.

Let me stress that if the reader desires to protect his child's teeth, all the phases I have mentioned must be strictly followed. None of these factors taken singly can be depended on to accomplish this purpose. Health, proper foods, dental care, and hygiene of the mouth should all be included. Remember that the teeth are not just "biting pegs"; they are living organs affected by body conditions, and they in turn influence systemic conditions. Keep in mind that all the tissues and all the organs fulfil the aim of the Musketeers: "All for one, and one for all."

Acme

Unable to go to the circus, crippled children at the Los Angeles Orthopedic Hospital recently had the circus brought to them. They enjoyed everything from the peanuts and popcorn to the elephants and trapeze performers—and especially the clowns.

Commuters in Blackpool, England, will enjoy summer sunshine this year in this new type of trolley car, or tram. This one, built especially for summer use, is called the "Toastrack."



Keystone

J. Jay Hirz

A young Abonaki Indian of Adanak, Quebec, Canada, takes a hand in child care by making a cradle from split ash for his tiny son.

The curious instrument shown below is an alp-horn, which looks as though it would give the blower plenty of lung exercise in the pure alpine air. The scene is in the Bernese Oberland, Switzerland.

J. Gaberell

A Housewife Looks at the Committee on Foods

By Doris W. McCray

X. Committee Acceptance of Fruit Juices

CONFIDENCE is placed naturally in a friend, rather than in a stranger. When one goes into a grocery store, one sees rows and rows of products bearing familiar names. Even fruit may have a familiar name stamped on it.

Sometimes a product bearing a new, unfamiliar name appears on the grocer's shelves; yet it bears a letter of introduction from a friend, which identifies it as a worthy product. It may be somewhat different from familiar brands, yet it is unmistakably a good, nutritional food. The "letter of introduction" is the Seal of Acceptance of the Committee on Foods. The "friend" is the American Medical Association, which carries on educational work in the interests of public health and sponsors the work of the Committee on Foods.

The Seal of Acceptance is easily identified on the package of food. It signifies that the food is nutritional and wholesome; it gives assurance that the food is all that the manufacturer represents it to be. It is a valuable guide to the housewife who selects fruit juices to quench summer thirst.

Fruit is an important and necessary part of the normal diet. A fruit juice can be expected to furnish refreshment and pleasure. It should possess an attractive natural color, aroma and flavor. It should be clean and undiluted. It should furnish practically the same nutritional value as the fruit had when it was in the orchard on the fruit tree. Even the best of commercial methods, however, slightly impair some of the vitamin values.

A fruit juice may be advertised as "possessing in high degree the natural nutritional value" of the fruit. Vitamin claims must be specific rather than vague and must identify the vitamins to which reference is made. The fruit juices that I shall discuss here include grape juice, orange juice, lemon juice, grapefruit juice and pineapple juice. The definitions adopted for enforcement of the Food and Drugs Act read:

1. Fruit juice is the unfermented liquid obtained from the first pressing of sound, ripe, fresh fruit or its pulp, and conforms in name to the fruit from which it is obtained.

2. Grape juice is the unfermented juice of sound, ripe grapes. It is obtained by a single pressing of the fruit, with or without the aid of heat and with or without the removal of insoluble matter.

3. Orange juice is the unfermented juice obtained from sound, ripe, sweet oranges. It may contain a portion of the pulp and/or of the volatile oil.

A certain brand of grape juice submitted to the Committee on Foods is wholesome and appetizing, but the advertising is seriously misinformative and deceptive. For this reason it was announced as not acceptable in *The Journal of the American Medical Association* (Jan. 27, 1934) with a complete discussion of the advertising claims promulgated, in order that the reasons for rejection might be understood. Acceptance of a food by the Committee goes further than merely the wholesomeness of the food article; the advertising claims must be truthful and appropriate for the article. The significance of acceptance includes wholesomeness, nutritional values and truthfulness of label and advertising. The present Food and Drugs Law prevents unwholesome food, but it does not prevent fraudulent and deceptive advertising.

The claims made for the rejected grape juice previously mentioned would falsely lead the reader to believe that it has specific properties for reducing weight. The sugar in this particular brand, or in any grape juice, is no more valuable in diets for control or reduction of weight than are other common sugars including ordinary cane sugar. The advertiser makes it appear that the grape juice in the diet brings about weight reduction, whereas in reality it is the controlled diet as a whole that is responsible for this result. Grape juice does not have as broad nutritional values as do many of the other fruit juices. It does not have amazing health properties and is not necessary in the diet; nor does it have special blood building power in anemia, such as the advertiser claims.

In many instances the iron claims and the blood building claims that appear in food advertising are either flagrantly incorrect or misleading. In order to establish the validity of iron claims and blood building claims the Committee has recently issued the following decisions:

Iron Claims for Foods

Foods vary considerably in iron content, only a portion of which may be readily utilized. The value of a food for meeting nutritional needs for iron depends (1) on its iron content, (2) on the availability of the iron and (3) probably on the presence of sufficient traces of copper in the diet to insure an efficient utilization of the iron. The ability of the growing body to get iron depends on the nutritive value of the diet in other respects besides iron. A well constructed diversified diet adequate in all other respects is likely to be ample in iron and copper for normal adults. Rapidly growing children need relatively more iron than adults, and their diets should always contain some foods rich in this element.

To warrant an iron claim, a food in an amount that most adults would consume easily in a single day should furnish a substantial proportion of the daily iron requirement (approximately 15 mg. Fe). Any food that would result in an intake of less than 3 mg. of iron (as Fe) per day does not warrant special recognition in advertising.

Iron claims should be restricted to simple statements of the value of the product in comparison with common foods for contributing iron for dietary needs. They should not involve statements of any order pertaining to blood building, because of their therapeutic significance or implications.

Blood Building Claims in Advertising

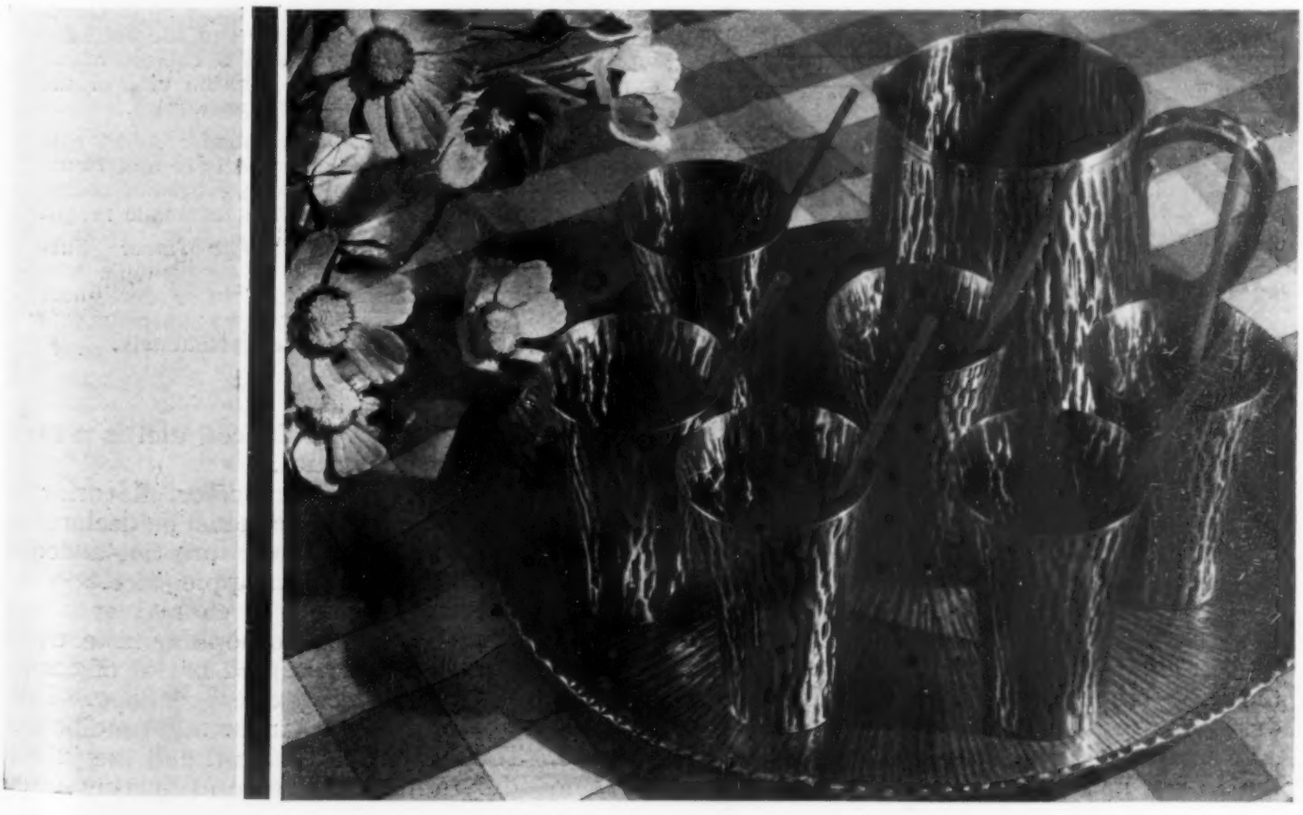
Iron is an important element in blood formation, since it is a chemical component of hemoglobin, the coloring substance of red blood corpuscles. Other substances taking part in hemoglobin generation are pigment-complexes, parent substances of the hemoglobin molecule, and copper in minute traces. . . . The food supply of iron and copper affects only the hemoglobin content of blood.

The whole process of blood regeneration is complex, involving many factors that may be affected by pathologic or disease conditions as well as by adequacy or inadequacy of the diet in iron. Anemia is a condition in which the blood is deficient in hemoglobin. It may be due to an inadequate diet, but pathologic conditions are frequently involved. Anemia and blood regeneration are not appropriate subjects for advertising addressed to the public. Blood building claims, therefore, should be excluded from food advertising.

Rejected brands may be reconsidered at a later date, if advertising claims are brought into alinement with what is the common scientific knowledge of those who are foremost in the study of foods and nutrition.

Oranges are matured according to state and federal requirements and are clipped from the trees carefully by pickers who wear gloves. The fruit is washed, dried and graded into ten groups according to size. It is packed into the familiar orange crates and sold according to size, 80, 100, 126, 150, 176, 200, 216, 252, 288 and 324 oranges respectively to the box. The freight cars of oranges are refrigerated in summer and heated in winter. Oranges contain 85 per cent moisture, a small amount of ash, 1.2 per cent citric acid, about 12 per cent carbohydrate, a negligible amount of protein and no fat.

Lemons are picked green, according to size, and matured until the skin turns yellow. They are graded according to size and packed 240, 270, 300, 360, 420, 442, and 490 to the box. They contain about 8 per cent carbohydrate, 5.1 per



cent citric acid and other constituents similar to oranges.

Grapefruits are sometimes stored and matured the same as lemons, in order to develop the flavor. They contain about 11 per cent carbohydrate and 2.2 per cent citric acid.

As a source of vitamin A, citrus fruits may be classed as poor to fair; they are a good source of vitamin B and an excellent source of vitamin C. They furnish approximately 0.6 calories per gram, or 17 calories to the ounce. Citrus fruits have a pleasing flavor which stimulates the appetite. Fresh citrus fruits are available the year round.

Vitamin C is not stored in the body but must be supplied regularly by food. Fruits are the most important source of vitamin C. Fruits are valuable, also, for their vitamins A and B, for their cellulose, bulk which is laxative in its effect, and for their alkaline salts.

Pineapple juice is a newcomer in the group of fruit juices popular in the home; only recently have processes been perfected which allow it to reach the consumer with the fine flavor characteristic of fresh pineapple as it is picked in Hawaii. A packer of pineapple juice told me that it used to be clarified and neutralized and sold to makers of carbonated beverages; it had a flat, stale taste and needed added flavoring to make it acceptable as a beverage. When the new process was perfected, the new product was tried out at A Century of Progress last year. It was accorded popular acceptance, and the volume of sales was so encouraging that many booths were opened for dispensing it. Grocers tell me that pineapple juice is selling exceptionally well in grocery stores.

It is an interesting fact that the pineapple which is fully ripened in the sunny field is simply bursting with juice, like a watermelon. This free-running juice is expressed. Pressing the pulp too tightly or pressing the core produces a bitter flavor, just as that produced when one presses a half lemon down on the extractor too firmly and gets the bitter flavor from the inner white peel. Fragrance is an elusive quality in fresh pineapple juice which is easily lost by overheating. The best brands of pineapple juice have an aroma and flavor that far surpass the juice of sliced canned pineapple that has been cooked with cane sugar. There is some difference, even in pineapple juice, and it pays to be discriminating in your choice of brands.

An accepted pineapple juice is packed under a number of brand names for as many individual marketers. When the labels bear the Seal of Acceptance, the packer agrees to use only a quality of juice that meets the standards of the American Medical Association Committee on Foods. Also the owner of these brands agrees to sell only an accepted pineapple juice under these specific names. Claims made for the various brands must conform to those that are acceptable to the Committee on Foods. These claims include the following: The accepted brands of pineapple juice are a good source of vitamins A, B and C, with little variation in vitamin potency. They are suitable for all uses of pineapple juice, largely retaining the natural nutritional values of raw pineapple, with the exception of a slightly reduced amount of vitamin C. The method of packing conserves in high degree the vitamin content.

Pineapple juice furnishes alkaline minerals which tend to offset acid minerals yielded by many other foods. It is valuable to those persons who do not eat enough of the alkaline foods, for a properly balanced diet is a nutritional essential for health.

The addition of sugar, color, flavoring or preservative to a fruit juice must be declared on the label. These substances are not added to the accepted brands of pineapple juice.

Cane sugar is added to canned grapefruit juice to make it appeal to popular taste, and it is added also to an accepted brand of canned orange juice. Nothing else is added. Fully matured Florida fruit, in sound condition, is used. The fruit is cut in half, and the juice is removed by a method known as burring, which

Frozen Cubes

An especially strong lemonade may be frozen and the cubes added to the iced tea or to fresh orange juice. A cube of frozen orange juice is delicious in lemonade. Use of a rubber tray facilitates removal of the cubes. The juices may be poured into a tray and allowed to freeze to a mush, instead of being made into cubes; this frozen juice may then be added to the beverage. All the juices make delicious sherbets.

Cocktail Suggestions

Breakfast Cocktail: Beat 1 egg yolk; add 1 teaspoonful of honey, a few grains of salt and the juice of 2 large oranges. Beat well and serve at once.

California Cocktail: Arrange whole peeled segments of orange or grapefruit as the petals of a daisy in a shallow dish. Half cover with orange juice. Place maraschino cherry in center, and serve cold.

Beverage Suggestions

Lemonade: To juice of 6 lemons add from ¾ to 1 cupful of sugar and stir until dissolved; add 6 cupfuls of ice water. Dip the rim of the glass in chopped mint.

Grape Lemonade: Add 2 cupfuls of grape juice and 1 cupful of freshly expressed orange juice to the lemonade recipe.

Hot Pineapple Juice: Submerge a can of pineapple juice in boiling water for about twenty minutes; open the can, and serve immediately.

resembles extraction on the common household juice extractor used for lemons. This method avoids the expressing of bitter substances from the peel, which might be included if the entire fruit was pressed. The coarse pulp is removed, sugar is added, and the juice is quickly pasteurized. The cans are immediately sealed, processed and cooled. Excess heat and the exposure of the juice to the air are avoided throughout, because of the possible deleterious effect on both flavor and vitamins. These methods produce a canned grapefruit juice that is not significantly poorer in vitamin C than freshly expressed juice. Canned orange juice also approximates fresh orange juice in vitamin C. The minimum protective dose of these canned juices for guinea-pigs has been determined by skilled researchers, and the definite amounts are included in the statements accepted by the Committee on Foods. Canned orange juice and canned grapefruit juice are classed as excellent sources of vitamin C. Because of the absence of oxygen within the can, it seems unlikely that vitamin C will be lost even during extended storage.

The various fruit juices are being served in hospitals and in many special diets. While they are extremely valuable foods, the packers and canners of accepted brands avoid any curative claims that resemble those made by "patent medicine" companies. Fruit juices are particularly suitable for babies but should be fed according to the physician's advice. They may be used to a certain extent as between-meal refreshment for children, because the fruit does not satiate the appetite and thereby interfere with regular meals as does highly sweet candy; and at the same time, fruits supply valuable minerals and vitamins.

To be truly delicious, fruit juices should be thoroughly chilled without dilution. Put into the refrigerator an ample supply of lemons, oranges, canned fruit juices and bottled grape juice, so that they will be thoroughly chilled and ready for immediate use. Lemon and orange juices are best when first extracted. Even a half hour's time makes a difference in orange juice. It becomes slightly bitter, flat and characterless, compared to freshly expressed juice. Have one of the convenient juice reamers or extractors always ready for use. The electric orange juice extractor is convenient, and it encourages a greater use of citrus fruits.

A little lemon juice added to almost any fruit beverage makes it more tart and more pleasing in flavor. Lemon juice is an especially good addition to orange juice and to grape juice; it is not needed, however, in unsweetened pineapple juice.

Ice should not ordinarily be added to the glass of fruit juice. The juice should be thoroughly chilled in a pitcher set in the refrigerator or in a deep pan of cracked ice. Undiluted fruit juice, frozen into ice cubes, may be used to chill the beverage.

Before breakfast, if you are a bit tired and not at all hungry, try taking the juice of a whole lemon in a glass of cold water, unsweetened! It seems to stimulate the appetite. A full 8 ounce glass of orange juice is not too much for the normal adult breakfast.

The recipes given in this article are suitable for normal children, adults and the majority of invalids; however each case is different, and only the physician in charge of the case would be able to tell what foods are allowed on the diet. Make sure that the best ingredients are selected. If you doubt the wholesomeness of a food product, find out whether or not the product is acceptable to the Committee on Foods of the American Medical Association, and if you doubt the correctness, truthfulness and appropriateness of the food advertising, find out whether or not those claims are acceptable to the Committee.

Dessert Suggestions

Banana Dessert: Mix equal parts of pineapple juice and orange juice; or combine grape juice with either of these. Pour mixture over sliced bananas in sherbet cups.

Melon Balls: Cut melon balls from honeydew melon, cantaloup or watermelon. Arrange them in cups, and cover with fruit juice.

Nursery Party Dessert: Cover marshmallows with fruit juice, and let them soak until softened. Serve with thin cookies.

Miscellaneous Suggestions

Broiled Bananas: Dip bananas, sliced lengthwise, in lemon juice. Broil until tender. Sprinkle with lemon juice and powdered sugar.

Florida Fish Sauce: Melt 1 tablespoonful of butter; add 1 tablespoonful of flour; rub to a smooth paste. Add 1 cupful of canned grapefruit juice. Cook and stir until the mixture is thickened. Dissolve ¼ of a bouillon cube in the hot sauce. Add 2 tablespoonfuls of chopped parsley.

Sugar Syrup

A smooth, well blended flavor can be produced in a lemonade or a fruit punch more easily if a sugar syrup is made first by boiling together 1 quart of water and 1 pint of sugar until the sugar is completely dissolved. Pour the syrup into a scalded jar, cover immediately, cool and store in the refrigerator to use as desired for sweetening fruit juices. For fruit punch, mix together several kinds of fruit juice.

[Note.—In the August Hygeia, Mrs. McCray will discuss beverages. Lists of the accepted foods discussed each month will be sent on receipt of 6 cents in stamps.]

Some Famous Victims of Smallpox

FAMILIARITY may breed contempt, but contempt for a disease seems more often to be bred from a lack of familiarity with it. Smallpox is a striking example of this axiom. This disease, once ubiquitous, is now so rare in many parts of the United States that it has almost become the forgotten malady.

Not so many years ago, no one could be unaware of smallpox, because it was omnipresent. No one could disdain it, because nearly every family was afflicted. It attacked the high as well as the low and infected the great as impartially as the obscure. Prior to the introduction of the salutary process of vaccination at the end of the eighteenth century, smallpox swept over the world in waves of epidemics; and for many years after, it was one of the most urgent of all social problems.

In the seventeenth and eighteenth centuries, the victims of smallpox included two emperors, an empress, five kings, two queens, a president, numerous princes and representatives of the lesser nobility, and the celebrated of all nations. From the earliest times to the turn of the nineteenth century, smallpox has taken its toll of the flower of humanity. It may do so again.

The earliest account of the appearance of smallpox in Europe is in an ancient manuscript, which dates from the fifth century and is written partly in Latin and partly in Saxon. In this venerable document, now reposing in the British Museum, it is stated that St. Nicaise, Bishop of Rheims, who became a martyr in 452, was afflicted with a species of variola. This manuscript must have been prepared more than a century after the event occurred, as the word "variola" was first used to describe smallpox in 570 by Marius, Bishop of Avenche. Other members of the learned clergy who reported on outbreaks of smallpox were Eusebius of Caesaria, who mentioned an epidemic in Syria in 302, and Gregory of Tours, who told of another in 581.

Early in the tenth century, Elfrida, daughter of Alfred and wife of Baldwin the Bald, was a sufferer from smallpox, as was also her grandson. From that time on and especially during the seventeenth century, many members of the English ruling houses were victims of smallpox, which Lord Macauley has called the most terrible of the ministers of death in England.

In 1650, William II, who was prince of Orange and grandson of the great William the Silent, and who freed the Netherlands from Spain, died of smallpox. A week after his untimely death, his widow, the daughter of King Charles I of England, bore a son; this son was one day to be known as William III, king of England, and he too was to suffer from smallpox.

In 1677, while he was still prince of Orange, this William married Mary, daughter of James II of England. Twelve years later he was instrumental in bringing about the abdication of his august father-in-law, whereupon he and Mary became the joint sovereigns of England. They ascended the throne in a troublous period, for smallpox had been epidemic from 1666 to 1675 and was still widely prevalent.

Five years later, the disease struck at the royal family. Dec. 28, 1694, Queen Mary succumbed to it at Kensington Palace, and William III also was stricken. The monarch recovered and lived until 1702; but his mother, an uncle and two cousins were not so fortunate, and all died of smallpox.

The kings of France were also plagued by the disease during the same period. Louis XIV had survived an attack of typhoid in 1657 when he was 19, but the grand monarch, despite all his magnificence, nearly died of smallpox. Many of his courtiers were likewise afflicted, so many, in fact, that one of the ladies of the court lives in the memoirs of the times chiefly because her natural beauty was unmarred by the inevitable pockmarks left by the disease. Louis's grandson, the Duke of Burgundy and heir to the throne, succumbed to smallpox in 1712. By his death the great-grandson of Louis XIV became the dauphin.

Louis XV, successor of Louis XIV, died of smallpox in 1774, after infecting thirty of his court attendants. His son, the dauphin, was another victim. About the middle of the eighteenth century, Maria Theresa, empress of Germany and wife of Francis I, had smallpox but recovered. Her daughter the famous Marie Antoinette, who was guillotined during the French Revolution, came to the throne of France when her husband, Louis XVI, succeeded to it because of the death of Louis XV from small-

« « « By JAMES A. TOBEY » » »

pox. Their son Louis Charles escaped this disease but died of tuberculosis in 1795 when he was only 10 years of age.

Among other royal victims of smallpox were the Roman emperor Joseph I, who died of it in 1711, and Emperor Peter II of Russia, whose demise because of smallpox occurred on the day set for his wedding in 1730. A queen of Sweden, an elector of Bohemia, an elector of Saxony and several members of the Hapsburgs in Spain are also said to have died of smallpox.

During the reign of George III in England, toward the end of the eighteenth century, the Tashi Lama of Mongolia made a triumphant journey to China, but the triumph ended in tragedy, for this sacred personage died there of smallpox.

Although Louis XV was the last great ruler to die of this disease, smallpox afflicted two presidents of the United States, but fortunately neither succumbed to it. In 1751, George Washington, then only 19 years old, went to the Barbadoes with his brother Lawrence, who was a sufferer from tuberculosis. While his brother was improving somewhat in the mild West Indian climate, George contracted smallpox, which left him pockmarked for life. Washington was not unique in this respect, for most of the gentry of the day bore these signs of the malady. Archeologists say that the mummy of Rameses II, who ruled over Egypt 1,200 years before Christ, displayed unmistakable pockmarks.

The other famous American president who had an attack of smallpox was Abraham Lincoln. When Lincoln went to Gettysburg to deliver his celebrated address, he left his son Tad at home sick. On his return from Gettysburg, Lincoln felt ill, and on his arrival at the White House he was ordered to bed with a mild case of varioloid. Mrs. Lincoln was sent away; but otherwise no strict quarantine was maintained, and visitors were received by the President. When Congress convened on December 8, he had recovered. It is interesting to note that President Lincoln's earliest ancestor in America, Samuel Lincoln, died of smallpox in 1690.

Edward Jenner

Then he was England's upstart doctor, bent
On certain mischief to the public health,
Working with diabolical intent
To vaccinate, by some ingenious stealth,
Cow natures into men. The stuff somehow,
Placed in the human system, would not fail
To make the subject bellow like a cow,
Grow furry ears and have a bovine tail.

Now he is benefactor of the race,
The man whose hand has stayed a pestilence,
Saved countless ones from death; a man of grace
Of which his work is its own evidence.
The name accorded one, by tongue or book,
Depends on which side of his grave you look.

—Clarence Edwin Flynn.

Thompson Photo

In May, 1796, Edward Jenner vaccinated James Phipps with cowpox.

The family of another notable American statesman was visited by smallpox early in the eighteenth century. In 1736, Benjamin Franklin lost his 4 year old son from this fatal disease. Although Franklin was a champion of the process of inoculation to produce a mild case and thus confer future immunity, he had neglected to take this precaution for his own child, and he always blamed himself for this negligence.

The practice of inoculation was introduced into England in 1717 by Lady Mary Wortly Montague, wife of the British ambassador to Constantinople. This procedure was supplanted nearly a century later by vaccination, a method first used successfully by Dr. Edward Jenner who had observed that dairymaids infected with cowpox were immune to smallpox. In May, 1796, Jenner vaccinated an 8 year old boy, James Phipps, with cowpox and proved by subsequent attempts at inoculation with smallpox that the boy had developed an immunity to this dread disease.

The first vaccination in America was performed in 1800, when Dr. Benjamin Waterhouse of Boston immunized his own son. Two years later the Boston board of health, of which the famous Paul Revere was president, conducted a test in which nineteen boys were vaccinated. All proved immune to smallpox, although two unvaccinated boys contracted it. In subsequent years, the process was championed by Thomas Jefferson, President of the United States, who had himself vaccinated in 1806. It is probable that most of the American presidents since that time have been sensible enough to have been vaccinated.

Universal adoption of vaccination after the beginning of the nineteenth century sounded the knell of smallpox, for this procedure is an effective preventive of the scourge. Despite the occasionally violent opposition of ignorant and misguided persons, vaccination has been generally employed in this country with gratifying results. In 1932 there were only about 13,000 cases of smallpox in the entire United States, with only forty-one deaths; whereas a hundred years earlier, the disease was widespread and caused a high mortality. Of the cases reported in 1932, over 90 per cent occurred in only half of the states. South Dakota alone accounted for 1,800 of them. Vermont reported 254, a case rate of 70 for each hundred thousand of population, in contrast to a rate of only 1 in each hundred thousand in the remainder of the New England states.

In states in which there are no compulsory vaccination laws, as in Vermont, relatively higher rates of smallpox prevail. When the United States took possession of Puerto Rico in 1898, smallpox had been constantly present for centuries. A vaccination campaign was instituted and has been maintained to the present day with the result that there were only twelve cases of smallpox among the people of that island during the entire decade from 1919 to 1928.

Indications that vaccination is no longer a universal and routine remedy in the United States have come from experiences with boys enlisted in the Civilian Conservation Corps. Among 6,000 of these embryo foresters who were examined by army physicians, it was found that fully one-fourth did not have any immunity against smallpox. Nearly all had attended public schools, but a distressingly large number had never been vaccinated, as they should have been in early life.

Vaccination is still a desirable and necessary preventive of smallpox, even though the disease is now relatively infrequent. Relaxation of vigilance in the use of preventive measures often results in a flare-up of a preventable malady. Celebrated persons no longer have smallpox, except on extremely rare occasions, but the unfortunate experiences of the celebrities of past generations should be persuasive examples for all the people of the present era.

"John! Pick up that paper!" *"That paper? Oh, throw it behind the tree, John."*

The purple stamp marks meat and meat products that have passed federal inspection.

The Story Behind the Little Purple Stamp

By
Dorothy Walton

IT HAPPENED in one of those several small towns in which I resided for over a period of years. I had stepped into a meat market to purchase a roast for a Sunday dinner and was offered a certain cut of beef with the glowing recommendation of the proprietor that the beef was freshly home-killed.

"But," I exclaimed, "I would rather not have home-killed meat. Do you not have any other kind?"

"My dear lady," he retorted with a superior air, "certainly you do not prefer packing house meat above fresh beef that we, ourselves, killed only yesterday."

"Yes, that is exactly what I do prefer," I said, as I thought of his inadequately equipped and none too sanitary abattoir just beyond the outskirts of the town. "And," I added as a word of caution, "see that the cut is marked with the purple stamp." For already I knew something of the little purple stamp and what it represents.

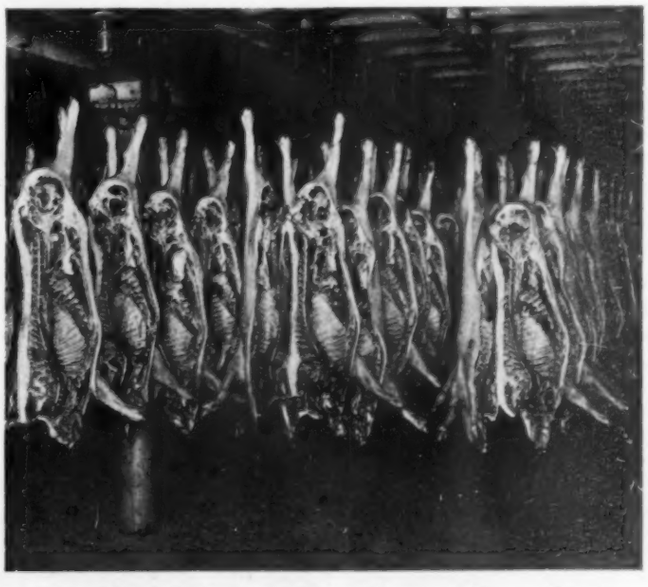
I knew for instance that the purple stamp carried the certification of the government that the meat came from a healthy animal and was fit for food when inspected; but I had no idea of the far flung organization back of the stamp or the extent to which that organization functions. Since then, however, I have made it my business to learn something about that organization.

The meat inspection service, as administered by the Bureau of Animal Industry of the U. S. Department of Agriculture, is said to be the largest public health activity of its kind in the world, although it serves other equally important purposes. Strangely enough, it was not inaugurated with any idea of protecting the health of the public but solely for economic reasons.

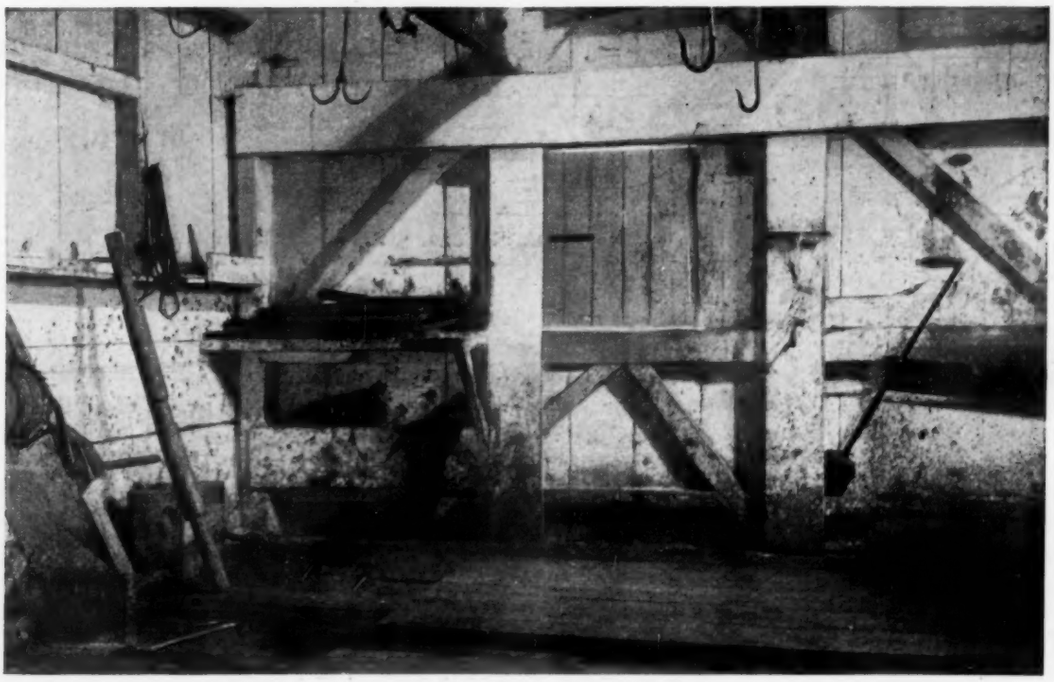
The period of the eighties of the past century was marked by a great expansion of the livestock industry, and free access to foreign markets was essentiai for the disposition of the growing surplus of meat and meat food animals. During this period, certain European countries placed severe restrictions on the importation of animals and meat products from this country because of the fact that certain diseases of livestock existed here. The gradual shrinkage of foreign markets due to these restrictions led to the passage of the first meat inspection act, Aug. 30, 1890. This act was further amended during the next five years but was never entirely adequate in giving the Department of Agriculture sufficient control over the sanitation of meat packing establishments and the preparation of meat food products.

Fifteen years after the passage of the original act the appearance of a popular novel brought to the attention of the public in a striking way the conditions existing at the large meat packing plants. The scene of this novel, "The Jungle," was laid in Packingtown, the stockyards district of Chicago. While it was apparent to all who were familiar with conditions existing at the time that the novel was extremely sensational and misleading, yet it inspired sufficient sentiment on the part of the public for legislation to give the government adequate sanitary control of the packing establishments. The agitation was one of the main factors in the passage of the Federal Meat Inspection Act of 1906.

The present meat inspection regulations are so framed as to give the government complete sanitary control of meat and meat products to



This refrigerating room for dressed hogs affords an example of the high degree of cleanliness maintained in federally inspected plants.



I thought of his inadequately equipped and none too sanitary abattoir.

be sold or shipped in interstate or foreign commerce. However, about 33 per cent of the meat consumed in this country is not subject to federal inspection.

Just how complete this control is may be realized from an enumeration of the various phases of the packing industry. The inspection includes antemortem and postmortem examination of animals, the supervision of sanitation in packing plants, the supervision of construction and maintenance of such plants and the methods of handling all meat, the supervision of preparation of meat food products, the supervision and testing of chemicals, spices, curing agents and water supplies, and the supervision of branding and labeling of meat and its products.

I am told that, for the most part, the meat packing companies have cooperated fully in the enforcement of the meat inspection regulations. They have spent millions of dollars in modernizing their plants, in installing improved equipment and appliances and in meeting sanitary requirements, all of which has enabled them to place on the market better and more wholesome products.

The inspection begins in the holding pens outside the plant. Here the veterinarian is responsible for the antemortem inspection. Animals are inspected as they are held in the pens or as they pass over the weighing platforms. The inspector is trained to detect disease conditions that would escape the eye of the less expert person. If the animal presents symptoms that would lead the inspector to believe that the animal will not pass postmortem inspection, a serially numbered tag bearing the label "U. S. Suspect" is affixed to the ear. Such an animal will be held for separate slaughter and will receive a particularly careful scrutiny on postmortem examination.

Now comes an animal which is obviously ill from hog cholera. The inspector's judgment based on the clinical symptoms of disease is final for this animal, and it is tagged "U. S. Condemned" and is not admitted to the slaughtering floor.

Inside the plant, perhaps ten hog carcasses a minute are being swung from the scalding vat and put through the dehairing machines. Yet each one of these providers of hams, bacon, spareribs and sausage is being given the same careful inspection. The head is partially severed from the body, the viscera are removed, and the carcass is swung on a rail while the viscera are placed in a sterilized pan that moves parallel to the carcass through the line of veterinary inspectors. The lymph glands of the neck are cut, for here usually appear the first evidences of tuberculosis, and other lymph glands are examined as the line of carcasses continues its steady and uninterrupted journey along the rail. The walls of the abdominal cavity, the thorax and the kidneys are inspected. Meanwhile other inspectors are carefully examining the liver, intestines, spleen, heart, lungs and other organs for any lesions of disease. If the carcass reaches the end of the line after passing the scrutiny of the trained eyes of the inspectors, it is stamped "U. S. Inspected and Passed" and is shunted into the cooler.

The least sign of disease in any part of a carcass, however, promptly leads to its marking with a "U. S. Retained" tag. Then its journey along the rail leads not to the cooler but to a special room, the "final room," where a final inspection and decision are made by veterinarians of long experience, especially trained

Veterinarians examine the hog carcasses in federally inspected plants. The parts on the moving table run parallel with the carcass on the rail, and identity is thus maintained.

in the pathology of animal diseases. The nature and extent of the disease processes determine the final fate of any carcass. If the condition is localized, the part affected is trimmed out and condemned, and the remainder is passed for food. Or the entire carcass may be stamped with indelible ink, "U. S. Condemned." Condemned carcasses and parts of carcasses are retained in the supervision of the government, are placed in huge cookers that are sealed with a government seal and are cooked under high steam pressure for not less than eight hours, after which the material is released for soap grease and fertilizer.

But the carcasses that reach the cooler have not passed their final inspection if any part is to be used in preparing meat food products or is to receive any further processing. The bacon that you had for your breakfast this morning probably received five distinct inspections before it received final approval and was passed for food.

All antemortem and postmortem inspections are made by veterinarians who are graduates of schools approved by the Bureau of Animal Industry. Before appointment, these men must pass a civil service examination and then must undergo a period of training before assignment to places of responsibility in the organization. The processing and preparation of meat food products are supervised largely by lay inspectors who are men of many years' experience in the packing industry.

This meat inspection is a far flung service. Its heart is in Washington, but its pulse is felt throughout 745 packing establishments in 257 cities and towns. It reaches from the docks of New York City to the docks of San Francisco. It inspects, before entry into this country, meat food products from the Argentine and lamb from New Zealand, in fact all imported meats and meat products. In the year ended June 30, 1932, it supervised the slaughter and inspection of 77,200,091 animals, at an average cost of about 7 cents for each animal. It condemned as being unfit for food 256,150 whole carcasses and parts of 964,276 other carcasses, not including 613,778 cattle livers and 25,906 calf livers. It supervised the preparation and processing of 8,289,881,799 pounds of meat and meat food products. It inspected and passed 30,938,832 pounds of import meat and meat food products, condemned 21,304 pounds and refused entry to 135,436 pounds.

To some persons these figures might indicate that disease prevails to an unusual extent in the livestock of the United States or that the inspection is wantonly wasteful. I am informed, however, that neither of these conclusions is in accord with the facts. American meat animals are healthier and livestock diseases are less prevalent here than in the various European countries. The loss incident to condemnations cannot be termed waste when it is considered that the material condemned is not regarded as being fit for food and that due strictness is necessary in safeguarding the public's health.

Thus the little purple stamp with its indelible but harmless fluid and its legend, "U. S. Inspected and Passed," with the establishment number at the top, is an assurance to the consuming public that the meat came from a healthy animal, that it was slaughtered in a sanitary plant, that it is free from harmful preservatives and that it is properly labeled for what it is. I realize now more than ever that it is worth while to look for the stamp when buying meat or meat products.

REFRIGERATOR FACTS

The refrigerator has won its place as a necessity because of the protection it affords against food spoilage and the resulting economy of purchasing in large quantities and planning meals in advance.

By Mary C. Brown

THE REFRIGERATOR is now regarded as a simple health necessity in every home. Like bathrooms, kitchen sinks and even windows in houses, which were once regarded as questionable luxuries, the refrigerator is now commonly accepted. It has won its place as a necessity because of the protection it affords against food spoilage and the resulting economy of purchasing in large quantities and planning meals in advance.

Some facts of physics, bacteriology, engineering and housekeeping concern every person responsible for the food and the health of a family. Refrigeration is the process of taking heat out of food for longer preservation of its wholesomeness. Heat is energy; it can neither be created nor be destroyed, although it can be changed into various forms and made to do work. As water flows down hill, heat flows from a hot object into a cold one. Actually there is no "cold"; there is only an absence of heat. Milk is measured by the pint, meat is measured by the pound, and heat is measured by the British Thermal Unit; 1 B.T.U. is the amount of heat required to raise the temperature of 1 pound of water 1 degree on the Fahrenheit scale. It requires 144 B.T.U. to melt 1 pound of ice at 32 F. into 1 pound of water at 32 F. The same amount of heat, 144 B.T.U., is sufficient to raise the temperature of 1 pound of water 144 degrees.

When ice is delivered to the home in winter, it absorbs some heat out of the refrigerator before it becomes warm enough to melt. A much larger amount of heat is absorbed during the change in physical state from solid to liquid, ice to water, which occurs at 32 F.

While formerly the chief concern was to make ice last as long as possible and women resorted to wrapping it in blankets or newspapers, they now realize that it is essential to keep the refrigerator at a safe low temperature for food preservation. Temperature in the milk compartment should remain below 45 F. and in the food compartment below 50 F. when the room temperature is 75 F. This standard is the minimum for ice refrigerators.

In order to maintain these temperatures, there must be sufficient ice, no covering or wrapping over the ice, a large enough opening from the ice chamber into the food compartment below, and baffle-plates properly placed to direct the air to the very bottom of the food compartment and to the very top of the highest shelf before the air goes to the ice to be cooled again. Even with correct refrigerator construction, free circulation of air may be impeded by overloading the wire shelves or by spreading paper on them.

The amount of ice required to refrigerate a given space depends on the cabinet design and

on the thickness and kind of insulation in the cabinet walls. A less efficient material for insulation must be of greater thickness to give the same results. When the less efficient insulators or the thinner pieces of insulation material are used in refrigerator walls, they provide less resistance to heat; hence the ice chamber must be larger, in order to maintain satisfactory temperatures for food storage.

Food Space in Three Classes of Refrigerators

Capacity of Ice Compartment	Minimum Size of Food Space		
	Class A	Class B	Class C
100 lb.	8 cu. ft.	6 cu. ft.	5 cu. ft.
75 lb.	6 cu. ft.	5 cu. ft.	4 cu. ft.
50 lb.	5 cu. ft.	4 cu. ft.	3 cu. ft.

The refrigerators in these three classes must meet definite requirements for insulation, construction and ability to maintain temperatures under certain conditions. The ice compartment should be at least half filled at all times. Dimensions of ice compartments and doors have been standardized.

In the purchase of a refrigerator, one should carefully consider the original investment in relation to the operation cost. It certainly does not pay to use the cheapest cabinets available. Cheap ice refrigerators make use of paper, which is not resistant to moisture. Tight construction and waterproofing of the refrigerator lining protect the insulating slabs from moisture which would allow heat to pass through them readily; but if the construction is not tight, moisture causes rapid deterioration. Poor refrigerators can be real ice eaters.

One refrigerator has a seamless porcelain lining, and the ice is placed in a swinging wire basket; this leaves the ice free for air to strike it on all sides. Baffle-plates are eliminated, and satisfactory low temperatures are maintained. Considerable work is being done to improve the design for maintenance of lower temperatures in ice refrigerators.

A refrigerator cabinet is expensive to build if low operating cost is to be insured. The framework must be sufficiently rigid and strong, and the outer finish durable and attractive; it may be porcelain enamel, lacquer on steel, or enamel paint, varnish or shellac on wood which is kiln-dried to prevent warping. Rigid blocks of insulating material must be sufficiently thick. The lining should be air-tight, the back solid, the latches and hinges strong, the doors tight fitting, and the legs sturdy and of a convenient height. Stain-resistant porcelain lining and rounded corners make cleaning easy.

Extra features which are offered for the housewife's convenience are a covered vegetable pan, flat wire shelves that support small dishes without allowing them to upset, an electric light inside the cabinet, sliding shelves, and a door that can be opened by a foot pedal when both hands are full of dishes.

The refrigerator should provide a proper temperature for food storage, convenience, low operating cost, corrosion resistance, attractive appearance, and sturdiness for long service.

In the processes of refrigeration by means other than ice, various refrigerant substances are used. In the electric refrigerator, which may be plugged into an appliance outlet in the wall, the compression system of refrigeration is employed; and such refrigerants are used as ammonia, sulphur dioxide, ethyl chloride and methyl chloride, which change from a liquid to a vapor, or boil, at a temperature sufficiently low to absorb the heat of the refrigerator cabinet.

Since such chemicals are expensive, they cannot be allowed to escape, as does the water from a melting cake of ice. They must be saved

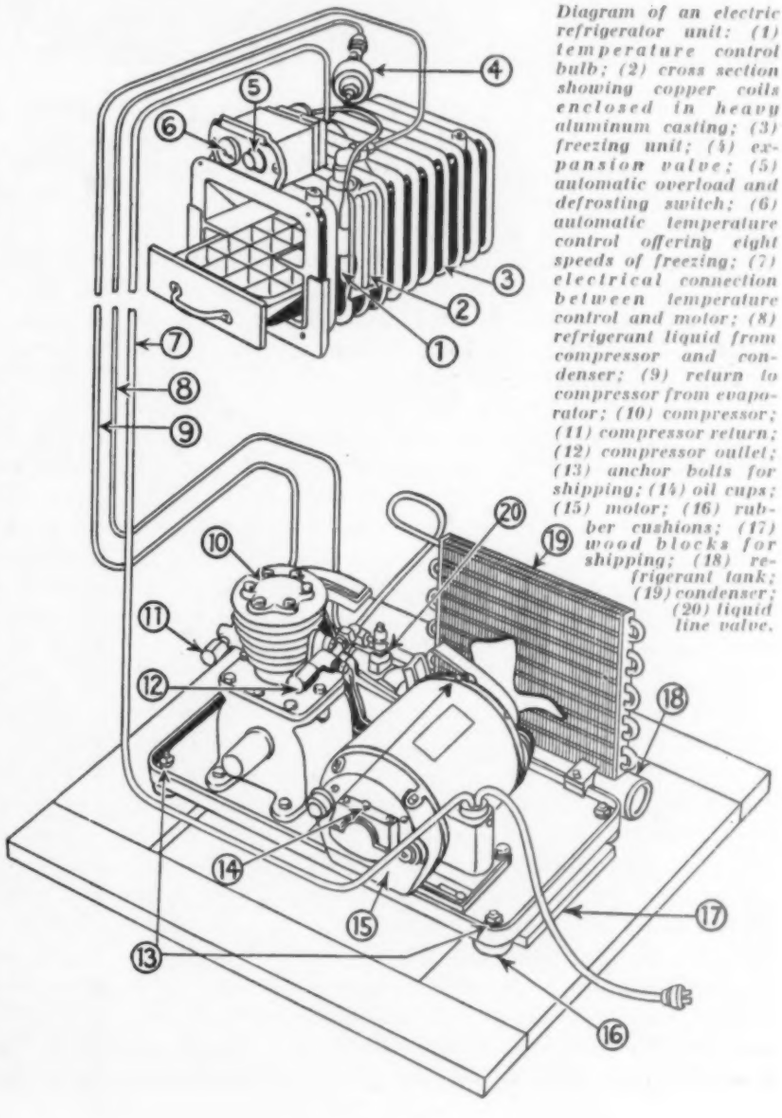


Diagram of an electric refrigerator unit: (1) temperature control bulb; (2) cross section showing copper coils enclosed in heavy aluminum casting; (3) freezing unit; (4) expansion valve; (5) automatic overload and defrosting switch; (6) automatic temperature control offering eight speeds of freezing; (7) electrical connection between temperature control and motor; (8) refrigerant liquid from compressor and condenser; (9) return to compressor from evaporator; (10) compressor; (11) compressor return; (12) compressor outlet; (13) anchor bolts for shipping; (14) oil cups; (15) motor; (16) rubber cushions; (17) wood blocks for shipping; (18) refrigerant tank; (19) condenser; (20) liquid line valve.

The refrigerator should provide a proper temperature for food storage, convenience, low operating cost, corrosion resistance, attractive appearance, and sturdiness for long service.

in closed systems, and the vapor must be changed back to a liquid in order to repeat the process of absorbing heat out of the food chamber. By this system the cool liquid, methyl chloride or some other refrigerant, enters the evaporator, or chilling unit. The refrigerant absorbs heat from the cabinet and from the food in the cabinet, and becomes a gas or vapor. This gas goes to a compressor where it is changed from a low pressure gas into a high pressure gas. Under pressure, the gas condenses into a liquid at a higher temperature. Thence it goes to the condenser which is cooled by water or by air. Heat is thrown into either the air or the water, and the gas is changed into a high pressure liquid. Thence it goes through the regulating valve where it is changed to a low pressure liquid that is all ready to perform again the task of cooling the refrigerator cabinet and its food contents.

The absorption method affords another means of reclaiming or liquefying the refrigerant after it has absorbed heat from the cabinet. In the absorption system a gas flame, or heat from some other fuel, is used instead of the compressor, and cooling is usually accomplished by water instead of by air. Advantage is taken of the affinity of ammonia for water. Heat is applied at one point in the refrigeration cycle so that it causes the solution to boil and give off the ammonia vapor, which then flows to the condenser, where it is liquefied. The cycle of evaporation, absorption, distillation and liquefaction is repeated. These changes take place within closed tubes, so that the refrigerant is used again and again without replacement.

The gas refrigerator is of the absorption type, being connected to the house supply of gas, natural, manufactured or compressed, and also to the water supply. Thermostatic control regulates the gas and water supplies, so that no attention is required.

The kerosene refrigerator operates in the same way. A tank of water for cooling the coils is placed above the food storage compartment. The burners are lit when the tray is pulled out; the tray is pushed back into the refrigerator, and the burners become extinguished when the measured kerosene has been burned. Satisfactory refrigeration is furnished for from twenty-four to thirty-six hours. This refrigerator may be supplied with a gas burner having an automatic shut-off.

The third refrigerator of this type is kept in operation by lifting the refrigerating unit out of the cabinet once a day and placing one of the balls containing the refrigerant over a small kerosene stove and the other ball into a tank of water. The heating of one ball forces the refrigerant into the other ball, which is then placed inside the cabinet. The refrigerant in the cold ball gradually vaporizes as it absorbs heat from the food in the box and returns to the other ball.

Directions for the use and care of any refrigerator should emphasize attention to the manufacturer's directions which usually have sound reasons behind them.

The lining of the refrigerator should be kept clean at all times. The ice chamber or the freezing coils should be cleaned often enough to keep the refrigerator odorless and sanitary. The exact amount of cleaning done depends on the use and abuse given the refrigerator. The refrigerator will need little cleaning if it is kept at a uniformly low temperature, if no food is spilled, if no dirty milk bottles or unwashed

vegetables are introduced and if no food is left there so long that it spoils. It is wise to follow these points of good technic consistently and thus avoid any necessity of warming the box by the use of hot soap suds. Under ordinary conditions, 2 tablespoonfuls of baking soda added to 1 quart of cold water is sufficient for cleaning. Coarse scouring powders may injure the glasslike porcelain lining. The use of warm water and mild soap, drying and a final rubbing with a special lacquer polish will keep the exterior in good condition.

Cold air drops by gravity. As air becomes warmer, it rises. It is important that air shall be kept moving and that refrigerator shelves shall not be overcrowded with foods that would impede the circulation of air.

Directly beneath the ice chamber or cooling coils is the coldest spot in the refrigerator. The top shelf, farthest from the cooling unit, is the warmest spot. Placement of food in the refrigerator should be in accordance with this temperature variation. In the ice refrigerator, the coldest spot is selected for all the most delicate and most perishable foods. In the automatic refrigerator there are exceptions to this rule: eggs do not require such a low temperature, mayonnaise may curdle and salad oil may become cloudy on this shelf, which offers a lower temperature than is found in the refrigerator cooled by ice.

Foods requiring the lowest temperatures are fresh meats, milk and cream. Butter may be added if space allows.

Foods which require the next lowest temperatures are cooked meats, gravies, sauces, gelatin desserts and salads. In hot weather, less efficient refrigerators may require that this group of foods, or the most important of them, are placed on the coldest shelf.

Other foods are arranged in succession, according to the readiness with which they will spoil. As it is usually desirable to serve beverages very cold, it is economical to chill water in covered containers rather than to add ice cubes to tap water.

Aside from the consideration of temperatures and spoilage, there is the fact that, as air circulates, it absorbs moisture and odors. These are deposited on the cake of ice or on the cooling coils. Then as it begins its new circuit, the clean cool air should fall first on the butter and cream. Such foods, which readily absorb odors, must be placed directly below the cooling coils. Foods such as cabbages and oranges from which odors emanate must be placed on the top shelf. Cooked foods should first be cooled to room temperature on the kitchen table and then covered before being placed in the refrigerator. Fish should be covered with water and tightly sealed in a fruit jar which has a rubber jar ring.

Vegetables take up considerable space; hence the inedible portions should be trimmed away and dirt and bacteria should be removed by a thorough washing before the vegetables are stored in the refrigerator. Fresh green vegetables are washed, drained and then stored in a covered container to make them crisp. A covered container long enough for a stalk of celery and deep enough for a head of lettuce is convenient.

Humidity is the essential difference between the ice refrigerator and the usual household automatic refrigerator, the latter having a much drier atmosphere. As the air circulates in the automatic refrigerator, it absorbs moisture which it deposits on the cooling coils as frost. This fact must be remembered. In the automatic refrigerator all liquids must be covered in order to reduce the amount of frost deposited on the coils. Cheese, boiled ham and foods which dry out easily must be wrapped in waxed paper or brushed with salad oil to protect the surface. Cooked foods should be placed in covered dishes or covered with waxed paper held in place with a rubber band. Parchment paper, moistened on one side, is convenient for wrapping a head of cabbage or a ball of cooky dough. If fruits are washed, they may be dried in the air or with an electric fan before being stored. Berries keep better if they are placed, unwashed, on a flat tray without covering. They may be cleaned and chilled just before being served. Meat should not be washed before being refrigerated.

When the frost on the coils becomes from ¼ to ½ inch thick, disconnect the refrigerator or turn the control to the "off" or "defrosting" position, and be sure that the drip pan is placed beneath the coils. When planning to defrost, empty the freezing trays and leave them out of the refrigerator. Wash the trays, refill with fresh water and replace after the unit has been wiped dry. To clean old blackened aluminum trays, use a cleaner consisting of 99 per cent tartaric acid and 1 per cent sodium fluoride, which may be obtained at the drug store.

Another method of defrosting is to empty the freezing trays and replace them filled with hot water; this causes the ice to fall off the cooling unit in pieces. This is convenient when it is found necessary to defrost in order to loosen trays that have stuck fast to the unit. A cloth wrung out of boiling water and applied to the front of the trays may also loosen them.

A recipe for ice cream intended for a hand-manipulated freezer is not suited to the electric refrigerator. A successful recipe for electric freezing must contain some ingredient to give body to the dessert; quick-cooking tapioca, flour, cornstarch, eggs, gelatin or whipped cream may be used. A sherbet is stirred frequently during freezing, to prevent large, jagged crystals from forming. Freezing of a dessert may be retarded if there is an unusually heavy load in the food chamber or if the mix- *(Continued on page 664)*

THE PARATHYROID GLANDS

By
Edward L. Compere

Calcium Foods	Phosphorus Foods	
Milk	Eggs	Oatmeal
Fruits	Milk	Dried Beans
Vegetables	Whole Wheat	Nuts

These foods are rich in calcium or phosphorus, the two elements most needed in bone building or preservation of bone strength.

PRACTICALLY every voluntary function of the human body is made possible by the supporting structures, the bones and joints. These are held together by tough bands of fibrous tissue, the ligaments, and are controlled in motion by muscles which respond to the command of messages carried to them by way of nerves leading from the brain. Without this framework of bones, man would be as helpless as a jellyfish and could not stand, sit or raise his head from the ground, and his hands and feet would be useless appendages.

This bony skeleton of the human body is not only a supporting structure, but it is also a reservoir or storehouse of calcium and phosphorus. Bone is not, as some might be led to believe, an inanimate substance comparable to a block of stone or a column of cement. It is a living tissue made rigid enough to support the body by the calcium carbonate and phosphate salts laid down in it. In the adult as well as in the child these bone salts are being continuously removed and renewed, so that there is a constant flow of both calcium and phosphorus away from the bone and into the body fluids and redeposition of similar salts that have been absorbed from the intestinal tract.

Calcium is an element essential to the life of plants and animals. In one of several forms, usually in combination with phosphorus, which may be spoken of as phosphate of lime, it forms the principal constituent of bone. The dried skeleton of the adult human body weighs about 10 pounds. Approximately 5 pounds, or one half of this mass, is composed of calcium salts, and most of the remainder is organic material consisting of dead cells and their fibrous projections, which form a fine meshwork in which the bone salts have been deposited by the cells. If a human body is cremated, all the organic material is burned up; and most of what is left is the bone ash, which is principally calcium salts. At the present market value this nondestructible portion of the average human body would be worth less than $1.

The normal parathyroid gland, shown at the right, is a small, firm, ovoid body about the size and shape of a grain of wheat. At the left is shown a parathyroid tumor.

Man derives calcium principally from milk, cheese, butter, eggs, nuts and green vegetables. When the various component parts of the body are functioning normally, there is absorbed from the food in the intestines and so sent to the bones by way of the blood stream approximately the same amount of calcium as is taken from the bones and lost to the body in the urine and waste material of the large intestine.

Various factors influence this process of absorption, deposition, reabsorption and excretion or loss of calcium. Vitamin D, which is present in cod liver oil, butter and a number of other oily substances, and which is also present in the skin of the body in an inactive form, is important in the absorption and deposition of calcium salts. The action on the skin of ultraviolet rays from the sun or of similar rays from therapeutic lamps activates a substance known as ergoste-

rol, which is normally present in the skin in large quantities, and so liberates vitamin D. A deficiency of this vitamin in the diet and an insufficient amount of sunshine or other ultraviolet irradiation of the skin surfaces of the body result in failure of absorption and deposition of sufficient bone salts. In the growing child this deficiency is characterized by weak bones which bend easily and produce rickets.

Every one today has heard or read about the endocrine glands or, as they are sometimes called, the glands of internal secretion. Deep in the neck of each normal human being there are four small, firm, ovoid bodies about the size and shape of a grain of wheat, two located on each side of the midline. They are usually in close contact with and immediately behind the thyroid gland, which sometimes becomes enlarged and is then spoken of as a goiter. These small, unimportant looking ovoid bodies are called the parathyroid glands, and their secretion exerts a specific effect on the removal of calcium from the bones. So important are they that the removal of all four of these little glands usually causes convulsions and death within two or three days.

The secretion of the parathyroid glands is one factor influencing the rate of excretion of calcium. If more calcium is lost by excretion in the urine and through the waste material from the intestine than is absorbed into the blood stream from the food that is undergoing digestion in the upper intestinal tract, the difference in the two figures constitutes a net loss to the body. If such a condition persists over a long period of time, the bones are slowly and insidiously robbed of that element which makes them supporting tissues. Even in an adult who has been well and strong, this disturbance in the calcium and phosphorus balance will eventually lead to such a degree of weakening of the bones of the skeleton that they will not adequately support the body; the bones of the legs may bend and those of the spine may become compressed and flattened. Such a condition as this may be produced by the overproduction of the secretion of one or more of the parathyroid glands.

If the parathyroid glands produce too much secretion either because they are overactive or as a result of the enlargement of one or more of the glands into definite tumors, the calcium salts are removed from the bone faster than they can be replaced. This results in an increase of calcium in the blood and a greatly increased amount of calcium in the urine. This condition has been called hyperparathyroidism, which means too much activity of the parathyroid glands. In some of the cases that have been studied, more than twice as much calcium has been lost in the urine as was absorbed from the food. If, in one day, 0.5 Gm., or ⅛ teaspoonful, more calcium is lost than is taken in by absorption from the food that is eaten, the patient would lose ½ ounce of bone salts in a month, or nearly ½ pound in a year; this is not an unusual rate of loss in the presence of a tumorous enlargement of one or more of the parathyroid glands. Since there are only about 5 pounds of bone salts in the average adult skeleton, the bones will become weak, if not actually soft, in the course of a few years.

A disturbance in the calcium and phosphorus balance may lead to a gradual weakening of the bones.

The causes of these tumorous enlargements of the parathyroid glands are not known; but the patients who suffer from this disease complain first of weakness of the legs and later of pains in the bones of the legs and in the back. In some instances the weakness has been so great that the patients have had frequent falls, some of which perhaps resulted in fractures of weakened bones. X-ray examinations of these patients reveal the marked loss of the bone salts as well as the bending of the shafts of the weight-bearing bones and the collapse, in some instances, of the bones of the spine. The final diagnosis should be based on the technical study of the ratio of the calcium and phosphorus taken in from the food and that excreted by the kidneys and the intestine. This requires laborious analyses of accurately weighed portions of all food eaten over a given period of several days and also an analysis of the calcium

and phosphorus content of the urine and waste material from the intestine over the same period.

Usually the tumor in the neck is too small to be seen or felt; but if the patient presents the foregoing picture and if laboratory studies show that more calcium is being lost than is being absorbed, parathyroid glands are suspected as the cause of the disability. Removal of the tumors effects either marked improvement or a cure. For thousands of years, patients have been afflicted with this disease which progresses with pain, weakness, fractures, disabling deformities and, unless its progress is arrested, death. But the proof that the parathyroid glands were to blame for this condition is a recent development. Some of the skeletons of the ancient Egyptians and also of the early American Indians show the marked calcium depletion with cystic areas in the bones that is considered typical of this condition which is known to the modern world as hyperparathyroidism.

EXTRA! HYGEIA EXTRA!

The August Hygeia Will Explain How to Keep Cool

"Your Skin Is Your Refrigerator"

It is both the heat and the humidity that are responsible for our discomfort during hot weather; but fortunately, says Dr. Lee D. Cady, nature has provided our bodies with cooling systems of about 2 million sweat glands. How these glands function and what are their effects on the human system is explained in detail, and the results of various experiments in connection with heat exhaustion are outlined.

Dr. Cady tells how the human refrigerator system may be kept at maximum efficiency, and gives clear, concise advice, so that he who runs may read, and he who reads may heed and thus keep cool during the hot summer days and months.

"Is Your Child Afraid of Dogs?"

When a sudden, unreasoning terror strikes an otherwise brave little boy and when he becomes so frightened that he prefers staying quietly indoors to going out with the other children to play, something must be done about it. The problem is not as simple as it sounds, for great tact and a keen, sympathetic understanding of child psychology are required.

Ellen Grindell deals adequately and sanely with this common problem in child training, which puzzles many mothers, and tells how one mother helped her 4 year old son to overcome a suddenly acquired fear of dogs.

"The Decline of Declines"

In a letter accompanying this manuscript, Frances B. Williams writes: "Recently I uncovered among my mother's memorabilia several old pamphlets and reprints published in the seventies and eighties of the last century. The portions in which the viewers with alarm of that period meditated on the distressing state of feminine health appealed to me as being of definite potential interest and amusement to modern readers."

"The Eye Book"

In the August HYGEIA, Dr. Hyman Cohen begins a series of articles on the eye, in which he will discuss the function of sight; optical defects; diseases of the eye in infancy and childhood, during adolescence, in the adult and in advanced age; injuries and first aid, and personal hygiene of the eye. This series, which is handled dramatically and with sustained interest, gives clear, concise information on many puzzling points.

"The Clubwoman Looks at Animal Experimentation"

The intelligent modern woman thinks for herself. She does not swallow, "hook, line and sinker," the maudlin statements of misguided but well meaning persons who skim the surface of important problems but do not delve below. She is not content with second-hand opinions and preformed and predigested ideas. She wants to form her own decisions, based on careful research into the problem and a thorough investigation of all sides of it.

"This thoughtful woman," writes Gertrude H. Campbell, "will wonder why, if those persons who oppose animal experimentation are so extremely sensitive to pain and torture in the lower animals, they continue to use the flesh of millions of animals killed for food and why they, for a large percentage of them are women, wear furs throughout the year when they must know that to secure these furs untold numbers of animals suffer agony and torture from the trap and the gun. When this woman is given the information that more pain and suffering are inflicted on animals by hunters and trappers in one day than have been inflicted on animals through experimentation in the entire history of such experimentation, she will appreciate the wisdom of the late Charles W. Eliot, president emeritus of Harvard, when he said, 'The humanity which would prevent human suffering is deeper and truer humanity than the humanity which would save pain and death of animals.'"

"Swept by a Cool Summer Breeze"

A pleasantly informative article on "vacationing at home" comes from the pen of Melba Acheson.

"Vacations have had a way of dwindling to a week or ten days these past few years," observes Miss Acheson. "That, for most of us, leaves a greater share of a hot sticky summer to dispose of at home.

"The clever women who have seen to it that their families' spirits were kept high, their stomachs well filled and their backs skilfully covered during the dark green depression are not running up any white flags yet. There will be a way, and they will find it, to make summer at home as gala as summer at the beach."

In a breezy article full of excellent suggestions, Miss Acheson helps HYGEIA readers to find this way; she tells how the home may be made cool and inviting, and gives tempting ideas for intriguing hot weather meals.

"Against Red Elephants"

Farnsworth Crowder takes his inspiration for this article from a visit to the zoo, where he overheard the following conversation:

"But Daddy, that isn't a ulephant. It can't be."

"Why can't it be an elephant?"

"It isn't red. The ulephant in the animal book. . . ."

Mr. Crowder believes that that child, unwittingly, was voicing a protest that should sound on the conscience of every person concerned with youth. She was saying: "Daddy, I have been fooled."

In a vigorously sincere article, Mr. Crowder issues a protest against second-hand living, against the substitution of picture book animals for real ones, of picture book experiences for real experiences in the lives and educations of children. The challenge that he issues resolves itself into the question, Is modern education "putting the cart before the horse?"

The Hot Weather Problem *in* Infant and Child Feeding

By *Gaylord W. Graves*

When the normal baby is exposed to summer sunshine almost daily, he need not be burdened with cod liver oil.

ALMOST any approach to a proper scheme of feeding the young in summer compels consideration of fundamental facts which determine proper feeding irrespective of climate or season.

At all ages the human organism is dependent on water, protein, carbohydrate, fat, vitamins and mineral salts. Especially important are calcium, phosphorus and iron.

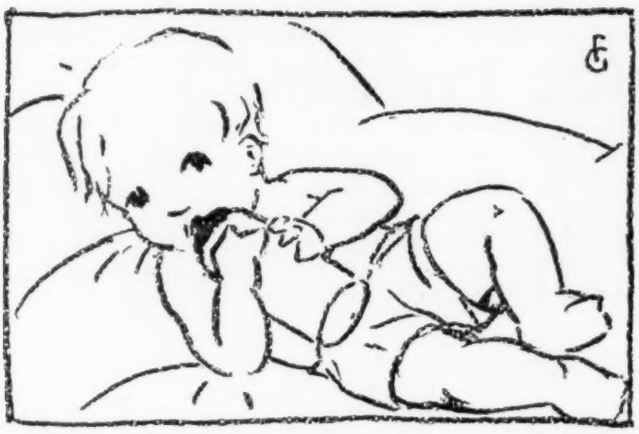
Because of the varying conditions under which it operates, the body at different times requires different proportions of these elementary food constituents. If this were not true, some fixed formula might do for everybody for all occasions. Thus it is elemental that fat, a reserve food and a good insulator, is most important to the Eskimo; lean beef with its high protein content is the mainstay of the athlete in training, while gruel and sweetened orange juice, supplying a quickly available form of carbohydrate fuel, are excellent tissue-sparers for the invalid with fever. In general, children require extra amounts of all the food elements in order to meet the demands of unusual activity and body growth.

The proper utilization of food is dependent not only on flavor and individual taste but also on muscle tone and digestive secretions, which are not always at top-notch efficiency during hot weather, as well as on freedom from fatigue, on a fair time allowance of at least four hours between meals, and on an intake in quantity commensurate with stomach capacity. In the case of the young, these rules hold strictly except perhaps in the matter of taste. The newly arrived baby may seem at first more or less indifferent to taste and flavor, often taking castor oil at the outset with impunity and in general manifesting literally the propensities of a little sucker rather than those of an epicure.

In such a situation, imposed by nature, ordinary difficulties with digestion, if not obviously due to infraction of the fundamental rules which have been cited, usually leave the offending victim no alibi and only emphasize the truth that from the cradle to the grave all of us are gastronomic sinners to a greater or lesser degree. Although our automobile fuel must be as highly refined as possible, our child's lunch, dictated by good and bad commercial nutritionists and soda fountain exponents, may be anything, regardless of how the individual human motor is geared or how the physiologic carburetor is set for fuel reception, distribution and ultimate body chemistry.

For practical purposes, then, it may be said that the best way to feed infants and young children in hot weather is to recognize the food needs and food handling possibilities of the individual under normal conditions and to make periodic adjustments to meet special conditions. A leaner mixture and less fuel for the same performance is the basic rule for men as well as motors when the air is hot.

In the case of the breast-fed baby warm weather adjustment is simple if the mother is well and has a chance to exercise her own independence and common sense. Few of an infant's friends, however, commonly grasp the fact that not all yells mean colic and that although a pint may be "a pound the world around," forced maternal intake of soup, tea, beer and even



Feeding the bottle baby during the summer months may become a complicated problem.

gruel and milk is not as productive of satisfying breast milk as the mother's customary diet of solid foods combined with a fair amount of fluid. Nor is there general appreciation of the good effects of the thorough and complete suction workings of a hungry little human vacuum. Quality as well as quantity counts; and when quality is good, the baby gets more with less effort and spills less than otherwise after taking a stomachful. After the first few days most babies can nurse seven or eight minutes on each breast without overfilling. The majority can wait comfortably four hours between feedings. Those who cannot, because of lack of strength or lack of food supply, should not be made to wait so long. None should nurse longer than twenty minutes at a time. All should have one bottle daily after the age of 1 month, not only to give the mother necessary independent existence but also to facilitate weaning at a later age. These simple rules hold for all seasons.

At the beginning of summer, if it seems probable that a baby will not get sufficient milk from the mother to supply him throughout the heated term, weaning, gradually conducted over a period of about two weeks, should not be postponed. It is better to make the change to artificial food two months earlier than may seem actually necessary than to conduct a forced feeding experiment on a weak little subject during July or August. Lukewarm water between nursings should be offered freely during midsummer, usually two or three hours after breast feeding.

The bottle baby's case is more complicated because his feeding portions are not automatically regulated by reflexes and instincts and because the time-honored glass vehicle conveying his sustenance is always being made better or worse by mathematicians who understand weight charts better than they understand actual babies. Moreover, the bottle, not being foolproof, is carried warm or cold with any old cork anywhere on any Sunday excursion, often under the jurisdiction of dirty, though willing, hands. Consequently the milk that a tuberculin tested cow may have provided in Grade A condition is inadvertently subjected to the propagation of all sorts of bacteria.

The business-like procedure of the Arabs, who sour milk simply and efficiently by adding to fresh portions a luxuriant growth of lactic-acid-producing bacteria to prevent protein putrefaction before it can set in, is an object lesson for those who are too careless to keep milk clean and to boil it whenever it is unprotected by ice. Even the vacuum bottle makes a dangerous culture tube if the contents are not constantly boiling hot or ice cold.

In an emergency why not give the baby clean warm water instead of doubtfully clean milk? If a delicate human being can worry along without any serious digestive disturbance for a few weeks of extreme heat, he will eventually gain in September as he did in May. It is better to have fewer calories in the bottle and fewer ounces of baby than an empty crib robbed by that old-fashioned disease "summer complaint."

Consider, then, in all seriousness the following simple rules for artificial feeding:

Bottles and nipples must be clean. The contents of any bottle not emptied by the infant within twenty minutes should be thrown out, both for the sake of cleanliness and to encourage appetite for the next feeding by allowing an adequate time interval for digestion.

Although what goes into the bottle may not make much difference to a future prizefighter with the phenomenal ability to handle undiluted what nature designed for the bovine species, there is no reason for unduly testing Providence by subjecting the ordinary baby's digestion to tolerance tests based on ignorance of feeding principles. Theoretically the formula ought to be about as sacred as the ordinary prescription and should be turned out competently by accurate calculation like a good cake made by one who does not "just guess."

Finally, the average willing doctor who fails as chef for a baby ought not to be relieved of his job without opportunity to enlighten his successor, however competent, from the standpoint of the observations already made.

Building on a fair formula and the principles of cleanliness and accurate feeding intervals, the mother or nurse who cares for the bottle baby in hot weather will probably encounter little trouble. Trouble will be minimized if, when appetite fails in a temperature and humidity both of 90, she pours out one fourth of the contents of every bottle and replaces the portion withdrawn by clean water.

Sour vomiting and direct evidences of intestinal indigestion in hot weather are danger signals calling for third degree procedures without delay: first, an enema of warm soda bicarbonate solution, and next the substitution of warm water or barley water for a few feedings, pending medical advice.

When the normal baby is exposed to summer sunshine almost daily, he need not be burdened with cod liver oil. Even orange juice, conveying the important vitamin C, is temporarily contraindicated if digestive fermentation is so marked as to be accompanied by vomiting or diarrhea.

Infants who are at least 6 or 8 months old and who are taking foods in addition to milk require less cereal, less vegetable, fewer eggs, and perhaps partially skimmed milk during the hot spells. When the source of the milk supply is in doubt, boiled milk and half-strength evaporated milk are safeguards, provided orange juice is taken to offset the deficiency of heated milk. Because of its excessively high sugar content, condensed milk has no place in infant feeding when evaporated milk is obtainable. Protein milk is now available in stable powder form. If advisedly administered under competent supervision, it represents a great advance over old-fashioned buttermilk which has been used in the past with good results in many cases of persistent intestinal disturbance.

While the infant is in a position of unique helplessness because of inability to speak for himself, he is probably less often the particular prey of the self-constituted amateur nutrition expert than is the older child of the runabout period between 2 and 5 years, who traditionally does better in an orphan asylum herded with other hungry inmates than segregated as a scion of wealth and catered to by a dietitian. Today even the public institution heeds the teachings of such authorities as Mendel, Sherman, McCollom, Simmonds, and Dr. Mary Rose who in particular detail has expounded "Feeding the Family."

All the authorities agree that the American diet, although improved by the gradually lessening consumption of a high proportion of meat, which is notably more stimulating and more productive of putrefaction than milk, is still deficient in milk and fresh vegetables and excessive in sugar. Not only is the doctrine of more fresh fruit, more leafy vegetables, less meat and sugar and more milk preached in chorus by those who know the wherefore of food elements in the human economy, but this teaching is exploited by hosts of food sellers who know only in part but turn out voluminous "ads" about everything from raisins to yeast. As a result the valuable discovery that adults have fewer headaches when their own meat consumption is reduced in favor of a generous intake of milk and leafy salads has set the unfortunate fashion of stuffing children with grapefruit, tomatoes and chocolate-flavored milk concoctions without regard to the vulnerability of the stomach or its freight-handling schedule. For this outcome the scientists surely are not to blame.

A school lunch of milk, fed at 11 a. m., may help out Tony who has had only coffee for breakfast; but in the case of little Lord Fauntleroy such feeding defeats its own aim because his lordship, partaking of milk at school, refuses the next good home meal. Grapefruit and orange juice liberally showered with sugar may suffice for an obese parent starting the day; but they do not work so well with Johnnie who never would touch cereal or egg and finds watery fruit juice more acceptable than nourishing milk.

For the average child the changing American diet is a beneficent institution with the quart of milk making up one fourth or more of the calories he needs for the day and furnishing him the lime salts his growth demands. Also fruits and leafy vegetables, if washed free of arsenate of lead so popular in plant insecticides, may prevent to a considerable degree the inroads of dental decay. But, granting all this, how is the anemic child, who never tolerated cow's milk well even in infancy and who develops a sicklied cast of countenance on custards and eggs, going to thrive unless the tables are turned or the "lazy Susans" shifted, so that he can have a fair amount of that juicy roast beef which the hired man demands?

As far back as the sixteenth century, Sainte-Marthe, in a popular old rhyme resurrected by Dr. Rührah, penned this advice:

> As he in Age and Strength or Body grows,
> That Strength in time the use of Flesh allows.
> Feed him, when minc'd, to ease the toothless Gum,
> Some Meals on Flesh, and at the Nipple some.

For certain children who are pale and underweight and who, through whim or mere dislike, have consistently done poorly on milk feedings, a moderate amount of partially skimmed milk with a larger allowance than usual of meat and bread fortified with butter, which is digested more easily than cream, may be of great value even in hot weather. Somehow the summer diet

Herded with other hungry inmates in an asylum, the orphan frequently thrives better than the segregated scion of wealth.

must be worked out to supply a full quota of energy for the undernourished child, no matter how the total is obtained, provided he is not overfed on sugar. A reasonable food list for the day calls for 1 quart of milk, if this is well tolerated, with the exception perhaps of the top 3 ounces of cream, which may be omitted when the appetite is poor; meat or egg or fish at one meal; raw fruit or fruit juice preferably twice daily; a salad of lettuce, tomato, celery or raw cabbage, served with a simple boiled dressing or lemon juice rather than with mayonnaise, and as much cooked cereal, bread and heavier cooked vegetable as may be given without interfering with the basic intake of milk, fruit and raw vegetables.

Breakfast may be eaten better if orange juice or raw fruit is not given before the main course of cereal or toast, egg and milk; in such cases orange juice may be given between meals. Dinner, supplying meat, egg or fish, with cooked vegetables, bread and butter and dessert, may be better digested if no milk is given at the meal. If meat is omitted and the dessert is light, milk may be given. Salad ordinarily goes well at the evening meal, supplemented by sandwiches of various sorts, milk or a vegetable puree made with milk, and a simple dessert.

Overindulgence in ice cream and candy, rich sirupy drinks between meals, fried food, disregard for time intervals requisite for proper digestive function, excessive fatigue, and contamination of food by unclean fingers and flies have always made children ill in hot weather. The same factors are a menace when the weather is not hot. More particularly, bathing within two hours after a meal and prolonging a swim at the usual hazard of lying about in a wet bathing suit do not conduce to good digestive tone.

Comfort for the family with today's low exchequer lies in the reassuring fact that many of the most economical foods are those which physiologic chemists advise. Milk, cabbage and bananas are inexpensive when meat, eggs and oranges are more prohibitive. Cheese in its more digestible forms is an excellent substitute for meat. Evaporated milk may be used to supply in various forms the equivalent of the traditional quart of milk a day when fresh milk is unobtainable.

The conclusions of a representative rugged individualist, emanating from the incorrigible fourth grade, may perhaps serve as the best suggestion to keep the approved summer menu safe and sane: "It's only a matter of common sense; and say folks, that new lady who has been telling us kids what to eat is the skinniest teacher in the whole school! What she needs is a good cook."

SKIN CANCER—Actual and Potential

(*Continued from page 593*)

tations are often necessary to determine the most suitable treatment. It is amazing in a cancer clinic to see how many patients there are who have treated themselves over periods of months or even years with tincture of iodine, carbolic acid, silver nitrate and myriads of lotions, pastes and salves. None of these has ever cured a case of cancer. Many have acted as an irritant and made a cancer progress more rapidly. These patients are sometimes self advised, more often by well meaning friends and frequently by druggists. Reports show that every type of treatment known to man has been employed in these cases. Statistics from cancer clinics show that the average patient has had his cancer for from three to five years before presenting himself at a specialized hospital.

On the women must rest the responsibility to keep watch, not only of their own skin but of that of their husbands and children. Much welfare work can be accomplished by their careful vigilance.

When a person gets cancer of the skin and has made every effort to have it properly treated, should he be discouraged? What chances has he to be cured? Conservative opinion estimates that if doctors have the cooperation of laymen in early treatment, from 95 to 99 per cent of cases of cancer of the skin can be cured. What results are being obtained in the present-day clinics where the patients are what might be called "run of the mill," and where cancers are found at all stages, some being seen for the first time from twelve to fifteen years after the onset of the disease? One surgeon reports that among over 300 fairly early cases, 86.5 per cent of the patients were alive and well after five years; of 33 patients with far advanced cases, 11 per cent remained well five years or more. Another surgeon reports that in 138 cases in which early treatment was given 84 per cent of the patients were alive and well after three years.

Methods are available at the present time that will surely cure cancer of the skin when it is still only a local disease. The only way these cases can be found early enough to ascertain that they are local is by educating the public, first, to have precancerous lesions properly attended to, and second, to go immediately to a doctor when the slightest change in an existing lesion is noticed. Deaths from cancer of the skin should be practically nonexistent in this country. It is a curable disease.

Along the Labrador Littoral

By
EDITH
BODEN

In some of the hamlets the houses hug the rugged ground, while in others they are perched up high on stilts above a rocky fiord.

"DON'T BE SURPRISED if as you journey along the coast the people come down to the boat to consult you, for they think any one connected with the Mission must be a doctor or a nurse." It was Lady Grenfell who gave me this advice before I went to Labrador as a volunteer social service worker for the Grenfell organization.

Her prophecy was fulfilled many times on my way to and from Windy Tickle, my headquarters. Often the liveyeres, the inhabitants of the Labrador coast, whose name is appropriately derived from the words "live here," came aboard when the freight-mail-passenger boat made a stop at a village (if a settlement of three or four families can be called a village). They would ask, "Be there a Grenfell nurse aboard this trip?" I was lucky when their reason for coming was to invite me ashore to their homes for a "mug-up" of tea and gingerbread or to ask a question no more serious than "What do be good for risin' fingers and t'ums?"

It was beyond my power to give some of the information they wanted, my knowledge of medicine and surgery being limited to a course in first aid, an operation for appendicitis, and the usual amount of commonsense information concerning sanitation, fresh air and regular habits of cleanliness. Forewarned, however, I had armored myself by taking along a large supply of gauze, cotton, adhesive, and such remedies as toothache drops, iodine, and mercurochrome, which they already knew as "curie-comb." I also had some articles useful in confinement cases, but my village thoughtfully spared me from being initiated into introducing them. To bolster all these, I carried a thick government bulletin on diseases, their symptoms and treatment.

However unsuccessful these contacts might have been to the Labradorians, they were invaluable to me, for they furnished me a broader, more accurate insight into the customs, beliefs and living conditions of the people than a study of only one village could possibly have given.

I found that conditions for which the people themselves are not responsible are to blame for many of their woes. In ordinary times the liveyeres have difficulty in making ends meet. In a time of depression, many of them actually starve, for they cannot sell the fish they have so laboriously caught. Their best customers, the people of Italy, Greece and South America, lack money. It would tax the versatility of any group of people, even if they were equipped with splendid educational training, to overcome the hardships imposed on the Labradorians by isolation and poverty, largely the result of the rigor and barrenness of the country, the uncertainty of a successful fishing season, the instability of markets, and the inadequacy of transportation facilities when there is a good catch.

The Labradorians are not an educated people. In their country there are few schools of even the most elementary kind. Occasionally a comparatively prosperous village will hire an educated fisherman to teach a three month term during the winter. Into only a few of the many isolated communities does the Grenfell Association send a volunteer worker for six or eight weeks during the summer. Although many of the people of Labrador are possessed of ability and even of superior intelligence, they find it hard to overcome the obstacles of poverty

Too many of the women look older than they really are. They work hard, hauling fish and firewood, carding and spinning wool, and even making shoes for their families.

and custom. In spite of their lack of opportunity, however, I found the liveyeres a likable, friendly, teachable people.

They are all poor; most of them are undernourished, and many are thin. The children are surprisingly pretty. Too many of the women look older than they really are. They work hard, for in addition to their routine duties they sometimes card and spin the wool before they weave it into cloth which they later make into garments. Some of them make the family's boots and shoes from home-tanned seal leather. In their spare time they may turn the fish that are drying on platforms in the sun or even lend a hand with an oar. The custom of chewing the seal leather with their teeth in order to shape it is often a contributing cause to the early loss of their teeth, a deficiency that is not easily remedied, as "store teeth" are expensive and almost unobtainable since there are no dentists in Labrador. Secondary only to the sea, their next greatest foe is tuberculosis, the "coughing disease," which is responsible for many invalids. Excessive child-bearing is traditional; families of from twelve to fifteen are common, methods of birth control being apparently either unknown or unobtainable.

There are no beauty parlors to help the women of the North keep young. There are no drug stores to sell them cosmetics or other articles for feminine beauty and hygiene. In my whole village there had never been a syringe. When I hesitated about offering to leave mine, a new one, as a gift to my hostess, she told me that it would be a blessing not only to her but to the whole community! For, said she, the only one that had ever been around there had been owned for over twenty years by a man living about 18 miles away. He prized it so highly that he would never lend it outside his own village unless he took it himself and brought it back. But alas, not long ago it wore out. I found the communal use of toothbrushes common also, the life of a brush even with double or triple use being prolonged from a year to nearly two.

Northern villages are much alike except that in some of them the usually unpainted, small frame homes are perched up high on stilts above a rocky fiord, while in others the houses hug the rugged ground and are often boarded up for a couple of feet with the space between the boarding and the wall filled in with dirt or sawdust. This makes the heating of the building easier in winter and also protects the potatoes, mainstay of the winter diet, from freezing in the cellar. Kerosene lamps summon mosquitoes through the unscreened windows, at times so many that I was forced to go to bed, my "fly-flappings" causing amusement to the natives, who seemed bite-proof. Although there are a few wells, drinking water is more often furnished to the whole village by a brook or an uncovered spring from which sometimes the youngsters chase the village dogs so that for want of something better to do they may amuse themselves by blowing bubbles in the water. A village that has a toilet has cause to boast.

The question of food is troublesome. Since in the Labrador there are no grocery stores or any itinerant vegetable men, the liveyeres must look to the sea for their food, either as storehouse or highway. I had imagined that fish would be plentiful there and the main article of diet, but I discovered that nature is often niggardly with her fish and game, so that the meat supply must be eked out and at times even supplanted with flour. The women are veritable geniuses at making not only bread but "flour-doings," such as stewed bread, bread soup and bread hash. If Mother Hubbard had lived in

Laborador, she would have gone first to the flour barrel and then to the sea to get her poor dog some food.

Incidentally the liveyeres are obliged to provide food not only for themselves but also for their dogs, of which each family usually has from five to a dozen. In the summer, since the beasts are not working, they are often left literally to fish for themselves. Many times I saw them doing exactly that, either out on the rocks or beneath the little wharves where they waited expectantly to snap up the fish heads that fell through the loose flooring of the platform on which the men and sometimes even the women and children were cleaning fish.

A few of the hamlets have stores, but the grocery for most of them is the trading vessel which, fulfilling the functions as well of haberdashery, drug store, hardware store and machine shop, comes in several times during the season when the water is free from ice. Time was when the "trader," as they call it, let people "get debt" if they had paid their previous accounts promptly, but now they come in only "where the bushes have berries." The liveyeres buy practically the whole year's supply of food at one time, usually paying with cases of lobster or quintals of fish.

Their purchases are never more than the staples: flour, usually white although the use of whole wheat is spreading through the efforts of Grenfell workers; salt pork; tea; dried peas and beans, and sometimes sugar but more often molasses, which is used even to sweeten their tea. When the head of the house faces the frequently impossible task of securing a yearly income of $250, on which to support a family of three, or $500, for a family of eight or more, he buys little coffee and practically no vegetables and no dried or canned fruit.

One family, viewed with disfavor by their numerous temperate neighbors because of the fact that they made beer by boiling kettles of spruce boughs with the needles left on and then fermenting the liquid with yeast cakes, tried several times to convince me that the expenditure of $5 for a jug of whisky bootlegged in from the island of St. Pierre or Miquelon is a much wiser investment for the liveyeres than the same amount spent for fourteen cans of fruit. For, they say, the whisky will last a family a whole year, while the fruit will not last a week when it is used to "treat." Imagine standing treat with a dish of tinned pineapples, peaches or plums!

More often the treat is merely a "mug-up," the never failing essential of which is a cup of tea that is as strong as lye, for the pot always simmers on the always well blackened stove. Mug-up, a pernicious, well established custom indulged in several times daily, probably arose from the fact that the fishermen, having to rise and return to their nets at all hours, found it handier to boil the kettle and snatch a bite of bread than to prepare or wait for a regular meal.

For vegetables the householder depends on Northern potatoes that are gorgeously purple and blue because of the soil in which they grow,

The Labradorians are chiefly engaged in fishing. The picture above shows a seal hunter and his quarry. To the left are shown two liveyeres scraping seal skins.

and on turnips. The shortness of the summer almost precludes his raising green vegetables unless they are grown in a hothouse for the first six weeks of their lives and then transplanted. The agricultural department of the Grenfell organization is successfully following this process.

The Labradorian varies his meat diet with rabbit, eaten either fresh or canned; one housewife I know canned more than 400 rabbits one winter. Sometimes, too, the Labradorian knocks down a wild goose, duck or partridge dinner with his gun. In some rare winter he may even be so fortunate as to have a taste of caribou, moose or bear. His diet is rather monotonous, however; he raises few chickens, no sheep and no pigs, for there is nothing to feed them, and only occasional goats and cows, which are sure of life as long as they furnish milk.

Each year in the more prosperous localities, more and more liveyeres are buying these animals to provide a welcome and much needed milk supply. The initial cost of a cow is not the only difficulty, for the native hay crop is scanty, and imported hay costs 3 cents a pound. Think of having to face the possibility of paying $60 a ton for hay! In the less prosperous districts, even canned and dried milk is a luxury enjoyed by few. Sweetened condensed milk is sometimes a luxurious substitute for molasses as "sweetness" in the Sunday morning tea.

What is used as baby food when there is no milk? Needless to say the infant mortality in Labrador is high. One is touched by the heroic efforts of the mothers to rear their children. Sometimes a mother has nothing to feed her child except gravy made of flour and water, perhaps flavored with cooked fish. In many homes there is nothing to eat except tea, pork, molasses and bread. I know an infant who was reared on soft bread and water without even a drop of molasses. Several mothers told me that when their milk failed, they chewed up soft parts of bread to make a mush and then fed it to their babies who ate it ravenously. What would they have thought if I had told them that in our large cities finicky youngsters have to have their appetites tempted by bread tinted pink and blue and yellow?

In a country where medical supervision is so desperately needed but is lacking, the people must depend on their own efforts to check and cure disease. They make salve from native turpentine gum; plasters and poultices from the outside rind of juniper trees, and teas from roots, herbs and wild berries. The line of demarcation between remedies and "charms" or superstitions is sometimes very shadowy. If lime water concocted from crushed burned rocks will keep babies from having rickets and if an oil made by stewing cods' livers is good to prevent the "coughing disease," then why is it not logical to cure "water whelps," sores made on the hands by salt water, by wearing a yarn string, a red flannel wristlet or a brass chain or, better still, by having the hands of a seventh son laid on the sores?

Sometimes sore eyes are "cured" by being bathed in the first snow falling in May; warts, by being rubbed with a bacon rind, which is then fed to the cat; lumbago, by having the sufferer lie on his face and letting a woman named Mary step on his back; toothache, by touching the tooth with a pebble from a newly made grave; and "kingcough," whooping cough, by having a woman with the same name as the sufferer give him a slice of bread and butter. The favorite remedy for curing dog sickness is to feed the dog 9 grains of shot on Friday. I heard of a man who attempted to cure a sick cow by boring a hole to the root of her horn. She died.

The liveyeres are subject not only to such diseases as rickets, beriberi and tuberculosis but to accidents and injuries because of their hazardous work. Yearly many persons are seriously infected from cuts and tears received from fishing implements and traps; others receive broken bones and crushed limbs from working with their boats, seal hunting on the icepans and logging in the woods.

I know a stalwart liveyere who, as he tramped through the snowy woods looking at his rabbit traps, suddenly slipped on an icy log and sprang the snare of a trap. Instantly the sharp end of the wire whizzed through the air and struck him in the eye. I know a mother whose little one toddled out into the yard and was almost disemboweled by the savage dogs. If medical attention had been available, it might have saved the man's sight or the child's life.

Last winter little 2 year old Larry, who had always been sickly with rickets, suddenly reached across the breakfast table for his second cup of tea. Frightened by his mother's "no more," he drew back quickly and doubled his leg beneath him; it broke in two places. The sea was frozen, so that his father could not take him to a hospital by boat. Dog sickness had destroyed most of the village animals, and the only teams left were off on trips. There was no telephone to summon the nearest doctor, who was miles away. So the mother cleared the table, the neighbors held the child, and the father, without the use of an anesthetic, set the leg himself.

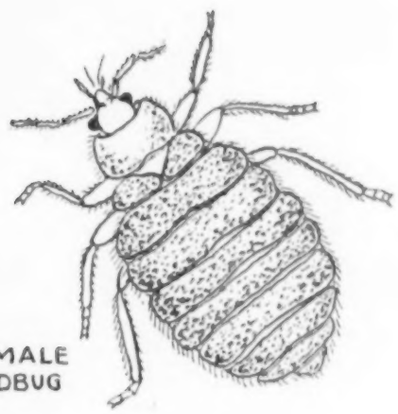
But this father can never perform such an act again, for last summer as he worked in a little saw-mill he had rigged up, a log rolled down and pushed his hand under the saw. His neighbors took him 14 miles in a little boat to a place where he could catch the weekly mail boat. After waiting three days for it and traveling three days more, he managed to reach a hospital where his hand, permanently mangled, could be treated. *(Continued on page 667)*

THE BEDBUG

Chapter II of

Our Parasites

By CLAUDE LILLINGSTON



THE SMELLY and incisive parasite commonly known as the bedbug has many names, both scientific and popular. Its scientific names are *Cimex, Clinocoris* and *Acanthia.* Its popular names are the bedbug, wall-louse, chinch-bug, mahogany flat, B flat, and Norfolk-Howard. The last cited, pretentious title is supposed to have been conferred on the bedbug most undeservedly. A certain Mr. Bug, suffering from an inferiority complex inflicted by the surname his ancestors had handed down to him, took official steps to change it. He quite naturally thought that, while he was about it, he would make the change as radical as possible. So the humble Mr. Bug became the aristocratic Mr. Norfolk-Howard. This magnificent metamorphosis appealed so irresistibly to the sense of the ridiculous in his contemporaries that they could not deny themselves the pleasure of referring thereafter to the humble parasite as a member of the British aristocracy.

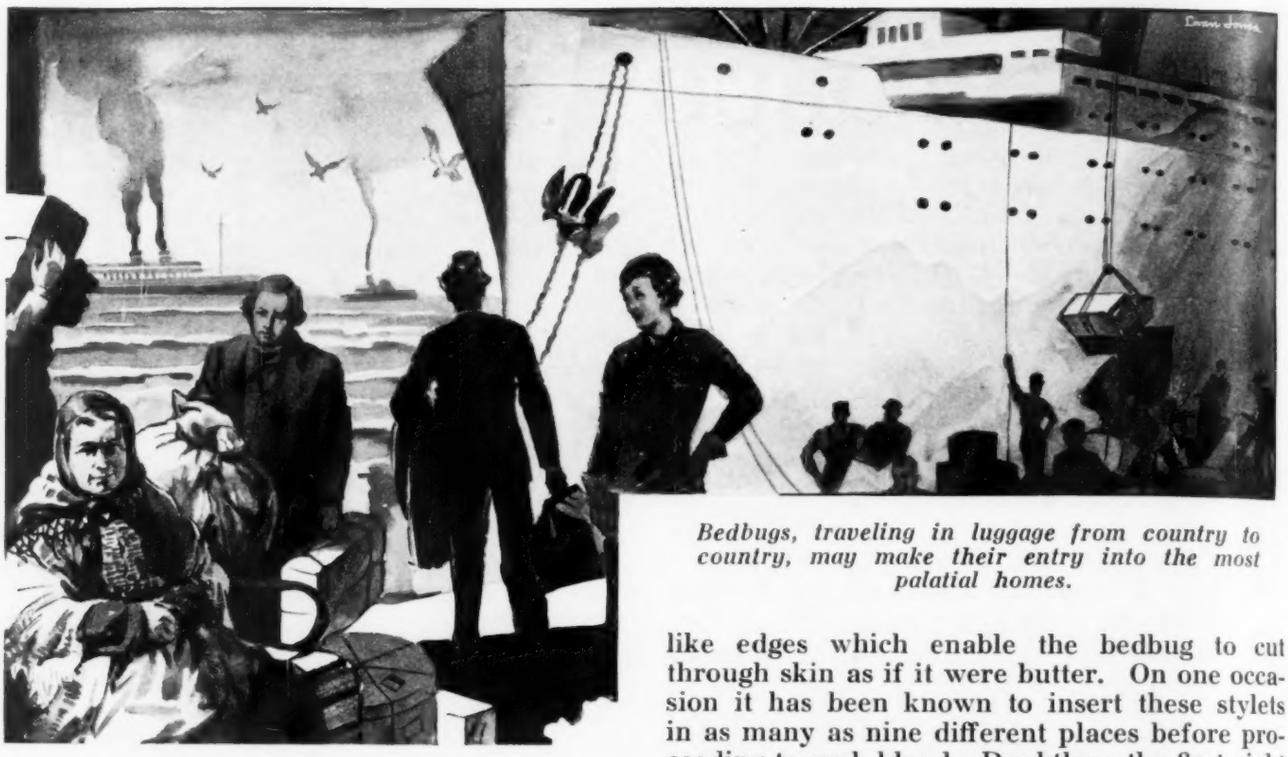
There are several species of bedbug. In temperate climates, Cimex lectularius is the most common, whereas in tropical climates, Cimex rotundatus is the more important. Other species attack pigeons, martins, bats and fowls, whose blood they prefer to that of human beings. Sometimes, however, under the stress of extraneous circumstances or a morbid appetite in themselves, bedbugs which, strictly speaking, are parasites of birds and bats, wander far afield, seeking human blood as an avocation.

Like many another parasite, the bedbug is supposed to have come from the Near East and the Mediterranean area. Englishmen have from time to time betrayed a misplaced gratitude by speaking of the bedbug as a gift from America. However, as the bedbug seems to have been located in England more than 400 years ago, early in the reign of King Henry VIII, Americans are quite justified in disowning it as their progeny; and according to Dr. A. E. Shipley, the British entomologist, it probably entered North America with the Spaniards in the sixteenth century and later took ship with the "best families" in the *Mayflower.*

The bedbug is about 5 mm. long, or ⅕ inch, and about 3 mm. broad. Its color is a dull amber or a rusty brown. Its names mahogany flat and B flat stress that quality which enables it to slip through the most minute chinks and splits in boarding and furniture. The head is short and broad and is furnished with a pair of prominent compound eyes which, to the casual observer, must seem wasted on it, considering that the habits of this beast of prey are preeminently nocturnal. Two antennae, or feelers, are fitted to the head. On the under side of the head is the segmented rostrum or proboscis containing the cutting and sucking instruments for drawing human blood. Each of the six legs is provided with two claws, and the bristly appearance of the body is due to its being peppered over with numerous small hairs. Two small pads, one on each side of the body, are all that remains of what had once been a pair of wings belonging to the bedbug's remote ancestors. Great and enterprising traveler though it is, the bedbug is only a pedestrian.

In the opinion of some of its victims, the bedbug offends even more by its smell than by its bite. Its stink gland is situated behind and underneath, and communicates with the exterior by a small pore between the hindmost pair of legs. As the stink gland is a defensive mechanism, designed to make the bedbug's enemies pause in their pursuit of it, it is natural to suppose that the parasite is most offensive when in an emotional state of anticipating attack. On the other hand, there is no reason to suppose that it would needlessly expose its smell batteries when stalking its intended victim. Be this as it may, some persons are much more sensitive than others to the smell of the bedbug, whose presence is detected by keen scented persons long before they see the bedbug or feel its bite. While the stink gland undoubtedly protects the bedbug from various potential enemies, such as birds, there remain many other creatures ready to overlook this disqualification in the bedbug as a source of nutriment.

The natural enemies of the bedbug begin, of course, with his unwilling host, man himself. A small black ant in Portugal is said to clear a house of these pests in a few days. The little red house-ant also eats bedbugs. So does the



Bedbugs, traveling in luggage from country to country, may make their entry into the most palatial homes.

cockroach. The larvae of Riduvius personatus, cousins of the bedbug, stab and suck it. In Northern Russia and in France, according to Cummings and Austen, a species of book scorpion attacks the bedbug, as does a certain spider in Greece. One such spider has been known to destroy between thirty and forty bedbugs in a day. In the United States, the house-centipede also preys on the bedbug. This list of the bedbug's enemies is assuredly incomplete, but it is long enough to emphasize the precariousness of the life it leads.

The bedbug's achievements as a traveler and nimble footed explorer are impressive. It is said in southern Italy that if the legs of a bed are submerged in metal saucers full of water, and the bed itself is placed in the center of the room, the pertinacious bedbug will crawl up the wall, then walk along the ceiling and drop on the occupant of the bed. Such an acrobatic and spectacular performance is probably confined to the most athletic and enterprising of the tribe, the average member of which gets there by a shorter and easier route. Many travel in luggage from house to house and even from country to country, and in this way they may make their entry into the most palatial of homes. On its predatory excursions, the bedbug may travel more than 50 yards each way, to its victim and home again, climbing along walls, pipes and gutters. The laundry basket, like luggage, is a popular vehicle for this parasite.

The apparatus with which the bedbug punctures the skin and sucks its victim's blood is most delicate and complex. It includes a composite tube, fitted with two pairs of stylets. The extreme ends of the outer pair have fine, saw-like edges which enable the bedbug to cut through skin as if it were butter. On one occasion it has been known to insert these stylets in as many as nine different places before proceeding to suck blood. Doubtless, the first eight punctures failed to open a capillary blood vessel. While the blood is being sucked, it is visible through the delicate wall of the sucking tube. A pump chamber in the head is fitted with muscles which draw the blood into the head by expanding the pump chamber. Thence it passes into the stomach, the whole process of sucking taking from three to ten minutes. After such a full meal, the bloated bedbug presents a curiously striped appearance because of the exposure of certain abdominal segments that had been overlapped in the fasting state by parts of the insect's outer coverings. The spectacle thus presented is suggestive of the small boy whose waistcoat has parted company with his trousers after a big meal.

The bedbug's bite is at first painless, and some persons hardly react at all to it apart from yielding up some of their blood to the invader. They may not be aware of what has happened until they awake in the morning to find their night clothing and sheets stained with blood. This means that the bedbug, overloaded with blood, has been accidentally crushed as the victim turned in his sleep and has been unable to carry away his ill gotten gains. Other persons react violently to the bite, the bitten area soon becoming red, swollen and painful. An extensive eruption may appear on some persons, while on others there develop round red blotches which last only a few minutes and cause no further trouble. In other cases the reaction may be delayed twelve hours, after which the bitten area becomes swollen and painful, remaining so for several days. Some relief can be obtained by the application of menthol, ammonia or tincture of iodine.

It is some consolation that, after a satisfying meal, the bedbug does not return early for another. While fleas and lice will feed more than once within twenty-four hours, the bedbug can dispense with food for weeks and even for months. It has been kept alive sealed up in a pillbox without food for more than a year. On examination after this enforced fast, the parasite was still alive but as thin and transparent as oiled paper. This ability to fast almost indefinitely enables the bedbug to bide its time successfully in houses which have been left uninhabited for months.

The bedbug is careless as to the time of year at which it breeds. Any time will do as long as it is warm enough and a sufficient supply of food is available. Cold, however, numbs its reproductive faculties. The mature female may lay more than 500 eggs; the record is 541 eggs. The eggs are oval and pearly white, about 1 mm. long. The young bedbug hatches out after an incubation period of uncertain duration. Some authorities estimate this period at from one to three weeks, and others at from one week to ten days. There is no transitional caterpillar or chrysalis stage; the young bedbug is a pocket edition of its parents as it emerges from the egg, a minute, red-eyed, semitransparent, yellowish-white creature.

The baby bedbug can survive for weeks without food, but it will feed as soon as it is hatched if it is given the opportunity. The young bedbug has to molt five times before attaining its majority, eleven or twelve weeks after hatching. Food is necessary between the molting periods, and as the supply of food is never regular and the young bedbug must often wait for weeks for its dinner, it follows that the date of its coming of age cannot be calculated beforehand. The adult female must also have her dinner before she lays her eggs, which she deposits in cracks and crevices.

The reputation enjoyed by the bedbug as a carrier of disease is vaguely lurid. The list of diseases spread by bugs is, in fact, quite long. It is so fashionable and easy to credit biting insects with various diseases, particularly tropical diseases. But of late there has been a movement to rehabilitate the bedbug in this respect. Professor C. J. Martin has drawn attention to a point almost as effective as an alibi for an alleged criminal. It is that while the flea and the louse may freely empty their alimentary canals in the act of feeding, thus infecting the wounds caused by their bites, the bedbug refuses to indulge in this disgusting habit. The Scottish verdict of "not-proven" is indicated with regard to many such diseases as typhoid and tuberculosis, although it is impossible to discharge the offender with a straightforward acquittal. The diseases of which the bedbug is still suspected of being a carrier are plague; kala-azar, a form of relapsing fever; a human spirochetosis closely resembling infectious jaundice, and, last but not least, yellow fever.

Obviously it is no easy matter to fight a parasite that can scale walls and climb down pipes and gutters from neighboring houses into one's own where it can afford to fast a year, if necessary, while waiting for its chance. Sporadic efforts to track down individual bedbugs in cracks and crannies are not likely to be successful, however much they may satisfy a craving for revenge on an individual offender. He is almost certain to have relations in the near neighborhood. A much sounder principle is that of fumigation. Hydrocyanic acid gas is quite the most potent agent to use against bedbugs, but it is so extremely dangerous that none except an expert should employ it.

A much safer chemical for fumigation is sulphur. The infested house is first carefully sealed up, special care being taken with fireplaces, windows, doors and keyholes. The brimstone is burned in a saucer that has been placed in a larger vessel to receive any overflow that may occur. Three pounds of brimstone is required for every thousand cubic feet of space in the house. Although four or five hours are said to be sufficient to kill every bedbug in the neighborhood, it is safer to leave the house sealed up for twenty-four hours.

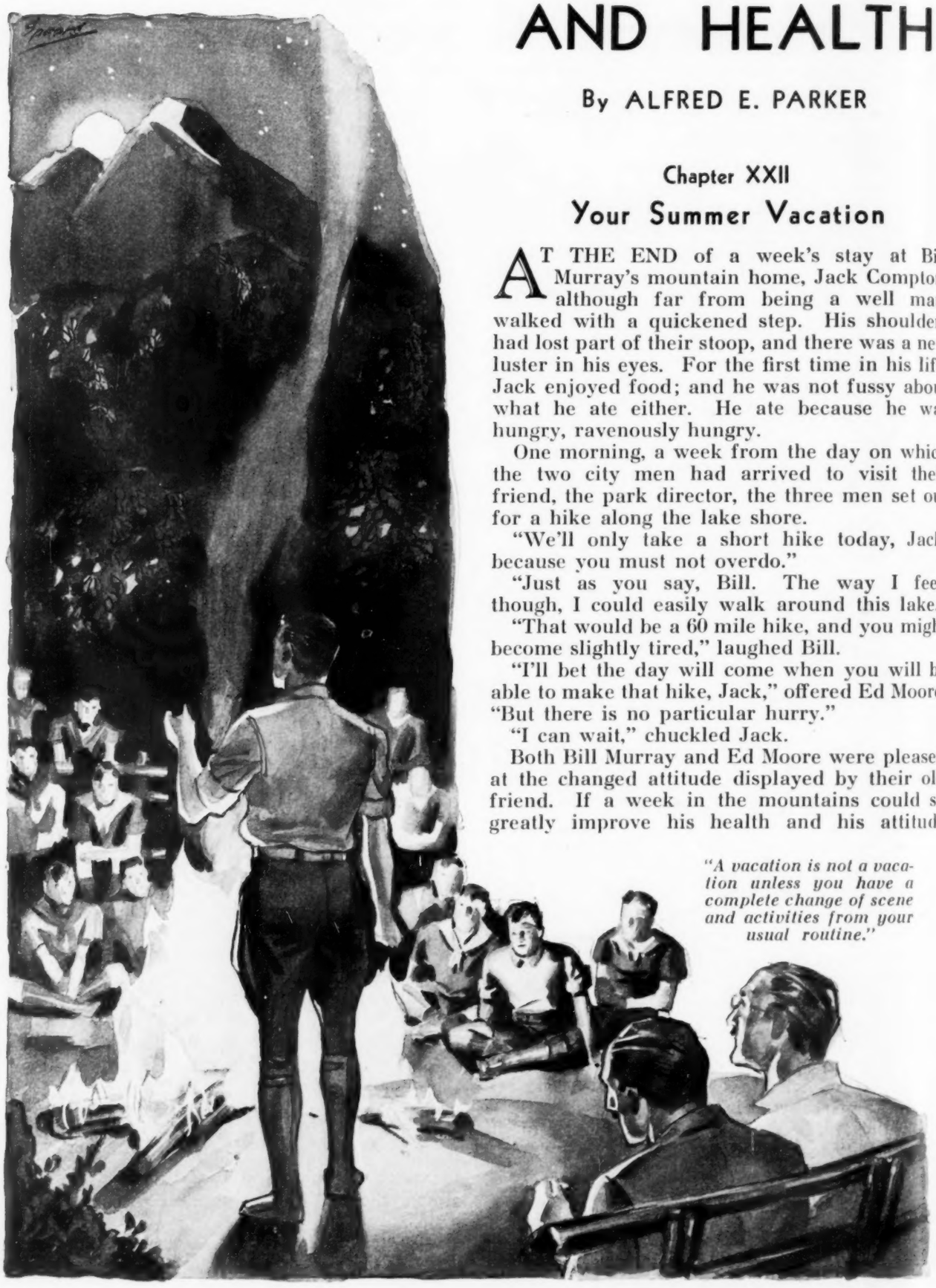
If for any reason wholesale fumigation is undesirable, much can be done by spraying cracks and crevices throughout a room with petrol. A useful emulsion for spraying with a hand syringe consists of 3 parts of soft soap dissolved in 15 parts of hot water, to which from 70 to 100 parts of kerosene, gasoline or benzine have previously been added gradually and with much shaking. This emulsion, which should be milky, can also be introduced into cracks on a brush or feather.

A house provided with radiators can be rid of bedbugs if the tap in each room is opened and the steam is allowed to escape till a temperature of 160 F. is reached. If this temperature is maintained for some three hours, no bedbug is likely to survive. The eggs are less amenable to this treatment; it may, therefore, have to be repeated once or twice in order that the baby bedbug, hatched out since the first steam treatment, may meet its doom. Householders without radiators may employ a portable apparatus for generating superheated steam. Such steam, led through a flexible tube and directed into cracks by means of a jet, quickly destroys both adult and egg. The flame of a painter's flare is also very effective; but if the operator is at all absent minded or inexpert, he may find that he has irreparably singed more than the peccant bedbug.

[NOTE.—In the August HYGEIA, Dr. Lillingston will continue his discussion of "Our Parasites." His next chapter will deal with the tapeworm.]

TRAINING FOR ATHLETICS AND HEALTH

By ALFRED E. PARKER



Chapter XXII

Your Summer Vacation

AT THE END of a week's stay at Bill Murray's mountain home, Jack Compton, although far from being a well man, walked with a quickened step. His shoulders had lost part of their stoop, and there was a new luster in his eyes. For the first time in his life, Jack enjoyed food; and he was not fussy about what he ate either. He ate because he was hungry, ravenously hungry.

One morning, a week from the day on which the two city men had arrived to visit their friend, the park director, the three men set out for a hike along the lake shore.

"We'll only take a short hike today, Jack, because you must not overdo."

"Just as you say, Bill. The way I feel, though, I could easily walk around this lake."

"That would be a 60 mile hike, and you might become slightly tired," laughed Bill.

"I'll bet the day will come when you will be able to make that hike, Jack," offered Ed Moore. "But there is no particular hurry."

"I can wait," chuckled Jack.

Both Bill Murray and Ed Moore were pleased at the changed attitude displayed by their old friend. If a week in the mountains could so greatly improve his health and his attitude

"A vacation is not a vacation unless you have a complete change of scene and activities from your usual routine."

toward life, what could a year do for him? This thought flashed through the minds of Jack's friends.

For several minutes the men walked in silence, each lost in his own thoughts, each captured by the spell of the fragrant pines, the distant purple mountains and the blue lake close at hand. It was Bill who spoke first.

"I suppose, Ed, you are prepared to speak to the boys over at Echo Mountain Camp this evening."

"Yes, I think I am, Bill. Of course, if you want me to answer questions, it is hard to say whether or not I am prepared, for boys can ask questions that would stump the most learned."

"I have no doubt you'll be able to handle the situation, Ed," returned Bill, "and you will find them an unusually fine bunch of boys. Most of the boys in the camp would not be there if it were not for the generosity of business men who are paying the bills so that they may enjoy a vacation."

That evening the three men walked to the boys' camp, where Ed was scheduled to give a talk. They found a camp of vivacious lads ranging in age from 10 to 18 years. They were seated around a roaring camp fire, some sitting on log benches and chairs and some on the ground, their legs crossed in Indian style. Could the great-great-grandfathers of these boys have returned to witness this group around the fire, they would undoubtedly have supposed that an Indian tribe was having a council of war.

After being introduced by the camp director, Ed Moore rose to speak:

"I am glad to talk to you boys tonight because I myself am still a boy. I hope I shall always remain one, for who wants to be an old man? Being a boy is so much more fun.

"Most of you boys, I understand, are here in the mountains for the first time. What a thrill it must be for you, having lived all your life in a big city, to see the mountains for the first time. John Muir was surely right when he said, 'Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees, the winds will blow their own freshness into you and the storms their energy, while cares drop off like autumn leaves.'

"And always you will find peace and freshness up here in the mountains. It may be the smell of the pines that gives it to you; it may be in the invigorating morning air; it may be a hike and then a hearty meal, or it may be a dip in a lake or a stream. But whatever it is, when men go to the mountains, peace and freshness are forever filling their souls.

"Your camp director told me I could talk on any subject I desired. So, for a few minutes I want to talk to you about planning your summer vacation. Instantly some of you may think that you have little to say about planning your summer vacation. That may be true now, but you boys are being educated, you are ambitious, and the day will come when you will be financially in a position to decide what kind of a vacation you will have.

"Every year in the city where I live I see men who do not even know the meaning of the word vacation. I find men staying at home during their summer vacations and painting their houses or planting shrubbery. These men could well afford to get away from home for at least a couple of weeks, but they are at a loss as to what to do, and so they stay at home. That is not having a vacation at all.

"A vacation is not a vacation unless you have a complete change of scene and activities from your usual routine. That would mean that people who live by the sea should travel to the mountains and people who live in the mountains ought to seek the seashore; and city people should vary their vacations by going now to the seashore and now to the mountains.

"For you boys it may be that the best kind of a vacation is to get a job out in the open, a job on a ranch or up in the woods or on a boat. I have known many boys who have had jobs away from the city and who have come back refreshed and happy to start in another school year. To stay on continuously in the city, with its lack of fresh air and sunshine, is a stifling situation which will not give you a chance to obtain health.

"Perhaps it has never occurred to you that there are many persons who do not know how to get much out of a vacation. I know a man who is in the first stages of tuberculosis, and each year when he goes on what he calls 'my vacation' he rides in a Pullman car to a distant city; he takes a taxi from the train to a hotel; he rides in an elevator to his room; and then each day he climbs into a taxi and goes from one show to another. During all his so-called vacation he is cheating himself of the one thing he needs the most, and that is sunshine.

"Sunshine is an enemy of disease germs. It is nature's tonic, a tonic far more beneficial than the fake ones that come in bottles. Why, even Benjamin Franklin, about whom most of you have read so much, discovered the health-giving possibilities of the sun. He took a sun bath each morning in his back yard.

"If you could travel to Switzerland you would find at Cergnat, in the Alps, the famous 'School in the Sun,' established by Dr. Rollier. At this school you would find small boys and girls, naked as the day they were born, running around in the snow, their brown bodies glistening in the sunshine. Since the attention of the world has been called to the healing properties of the sun, schools similar to the one at Cergnat are being established in various cities; and today sunshine schools are helping undernourished and tuberculous children to find health.

The best kind of a vacation for you may be a job out in the open, a job on a ranch, for instance.

"Exposing the skin to the sun is a step toward health, although you should be cautioned not to be overzealous to acquire a tan. Every year serious injury results when boys expose large portions of the body to the sun for too long a time. Burning the body while basking on the beach would not be so common if boys realized the seriousness of a burn. Death is quite liable to result if a large area of the skin is burned. You can safeguard yourself by exposing your body gradually to the sun. When this precaution is taken, sunshine is especially beneficial.

"So, when the time comes for your vacation, seek a place where there is plenty of sunshine. At the same time, seek a place where living conditions are safe. If you go to a resort, choose one where the drinking water is pure, where an up-to-date sewage system is maintained, and where food that is inspected and known to be clean is prepared in sanitary kitchens.

"Some day, too, you may have the opportunity to go on a camping trip in your own car or that of a friend; and when that time comes, remember that you will not have any health department to look after sanitary conditions. That will be your job. On a camping trip one of your biggest problems will be to find pure water. When you are not sure whether or not the water is pure, you should boil it. The same is also true of milk, for impure water and impure milk may contain germs of typhoid, tuberculosis, scarlet fever or diphtheria.

"When you pitch a tent, choose the top of a low ridge, the summit of a knoll or the bank of a river. If you can, select a sandy or gravelly place that assures good drainage. Camp under trees whenever it is possible, taking care first to remove the underbrush, for by so doing you will be able to prevent mosquitoes from breeding.

"I am giving all these points about a vacation because if you know how to spend your time in the summer you will benefit by building a healthy body. Some boys view a vacation wholly as a lark. They stay up until all hours of the night and then return from their vacations bragging about what wonderful times they had. It is easily observed, though, that such boys are completely fagged out; their vacations have been of little value to them.

"In this camp you boys have a regular routine to go through each day. You are all in bed at the same time each night; you are taught regularity of living, and that is just as essential on a vacation as at any other time.

"How foolish it would be, too, for you to spend all your time here sitting in your tent reading a book. Through the generosity of several business men in your city, the outdoors is yours for six weeks. What an opportunity you have to drink in all that the mountains have to offer; what an opportunity you have to refresh your soul and build your energy and your health. Is there any reason why your cares should not drop off like autumn leaves?"

Ed Moore found a seat on a log bench, and the boys showed their approval of his talk by loud clapping.

"Is there any one here who would like to ask Mr. Moore a question?" inquired the camp director after thanking the speaker for his talk.

"Yes," came a voice from the shadows. "I should like to ask Mr. Moore if he will tell us the best way of rescuing a drowning person? Yesterday a boy in another camp, located at the north end of the lake, was almost drowned. We might have an accident here, and we ought to know how to handle it."

"That's a rather big question to answer," replied Ed Moore, as he stood before the boys again. "It's a sensible question, though, and I shall try to answer it briefly because here on this lake you boys may have occasion to use such knowledge.

"I might say first of all that it has been my experience that a big percentage of drownings are the result of carelessness. You cannot afford to be careless around water. I have seen boys go far out on a lake or a river in a boat that was too light and that was easily tipped over; I have seen boys go in swimming in the ocean when they were told that there was a strong undertow or rip tide; then, too, I have seen boys dive

into a river that was strange to them, not knowing how deep the water was or what kind of currents were beneath the smooth surface. Boys who take such chances are liable at any moment to meet disaster.

"When it becomes necessary to rescue a drowning person, do not enter the water unless you have to do so. If the accident happens near the shore, you can hand out an oar or a pole or throw out a rope which the distressed person can grasp. Be careful about jumping into the water to make the rescue, because struggling with a drowning person is a most difficult and perilous task.

"It often happens, though, that you are compelled to swim after a drowning person. Before you attempt to do this, strip off your clothes; for if you leave them on, they will soon fill with water and drag you down. As you swim to the distressed person, talk to him in a loud, firm voice, assuring him that he will be safe if he will not struggle. Tell him that it takes only a slight movement to keep afloat. By speaking firmly enough, you may calm him so that you can catch hold and pull him to shore. Remember, though, that it is madness to try to catch hold of a drowning person when he is struggling.

"When you see that he is not struggling, get close to him and grab hold of his hair. With as quick a movement as possible, turn him over on his back. Then turn over on your back, drawing the drowning person up against your stomach. In this way you can swim on your back, towing the person to shore.

"This method of rescuing is about the simplest there is. Those of you who wish to become expert in various rescuing methods should study and pass the tests of the Junior Life Saving Corps. Such knowledge is valuable to possess, but it would take too long to explain it here tonight.

"There is one other fact I might mention. At times, the drowning person sinks to the bottom. The location of the body can usually be found by the air bubbles which will come to the surface. When diving for a person, grab hold of the hair with one hand, using your other hand in a motion to aid that of your legs in raising yourself and the drowning person to the surface.

"Are there any other questions you would like to ask?"

"How do you help a drowning person who is full of water?" This question came from a voice located in another part of the shadows.

"I must say that you boys ask sensible questions," answered Ed Moore. "I could not refuse to answer so practical a question; and if one of you will volunteer to be the victim, I shall demonstrate artificial respiration here in the firelight."

Amid the cheers and comments characteristic of a group of boys, a fat boy volunteered to be the victim.

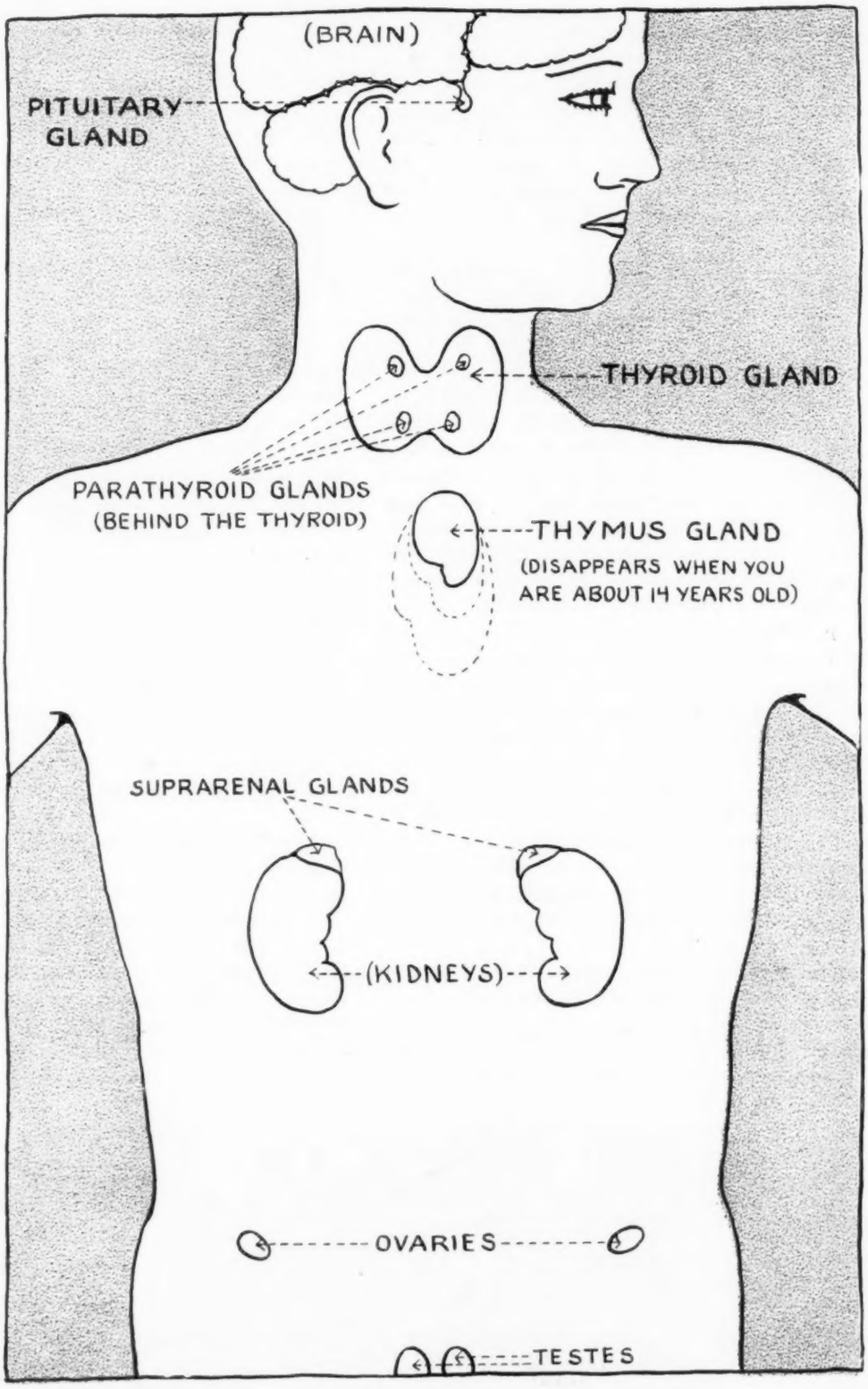
"First of all, place the drowning person face downward," said the speaker, as he demonstrated with the fat boy. "The left arm should be extended straight up past the side of the head. Bend the right elbow at a right angle, the palm downward, and let the face of the victim rest on the back of his hand. In this position the nose is pointing toward the finger tips. By placing the head of the victim in this position you will be able to prevent dirt and other foreign substances from getting into his mouth when breathing starts.

"In administering artificial respiration, you should kneel astride the victim. Then place the palms of the hands on the small of his back so that the fingers rest on his ribs, the little fingers reaching just below the last rib. The thumbs and fingers should be held naturally. Exert the pressure with the heel of the palm. Always keep the arms straight, never bending the elbows."

All these positions were demonstrated, and then the speaker continued:

"As you hold the arms straight, count one, two, three, and gradually let the pressure of your body be brought down on either side of the small of the back. This pressure compresses the chest and the abdomen and forces the air out of the lungs. *(Continued on page 668)*

In answer to the boys' requests, Ed Moore showed them how to administer artificial respiration.


(BRAIN)
PITUITARY GLAND
THYROID GLAND
PARATHYROID GLANDS
(BEHIND THE THYROID)
THYMUS GLAND
(DISAPPEARS WHEN YOU ARE ABOUT 14 YEARS OLD)
SUPRARENAL GLANDS
(KIDNEYS)
OVARIES
TESTES

I Want to Know

A FIRST PHYSIOLOGY

By Oscar Reiss
and
Dorothy Walter Baruch

XI

Mysterious Fluids

ON THE DAY when Jean and Jerry and John went to see the circus, they went into the side shows and saw some peculiar looking creatures.

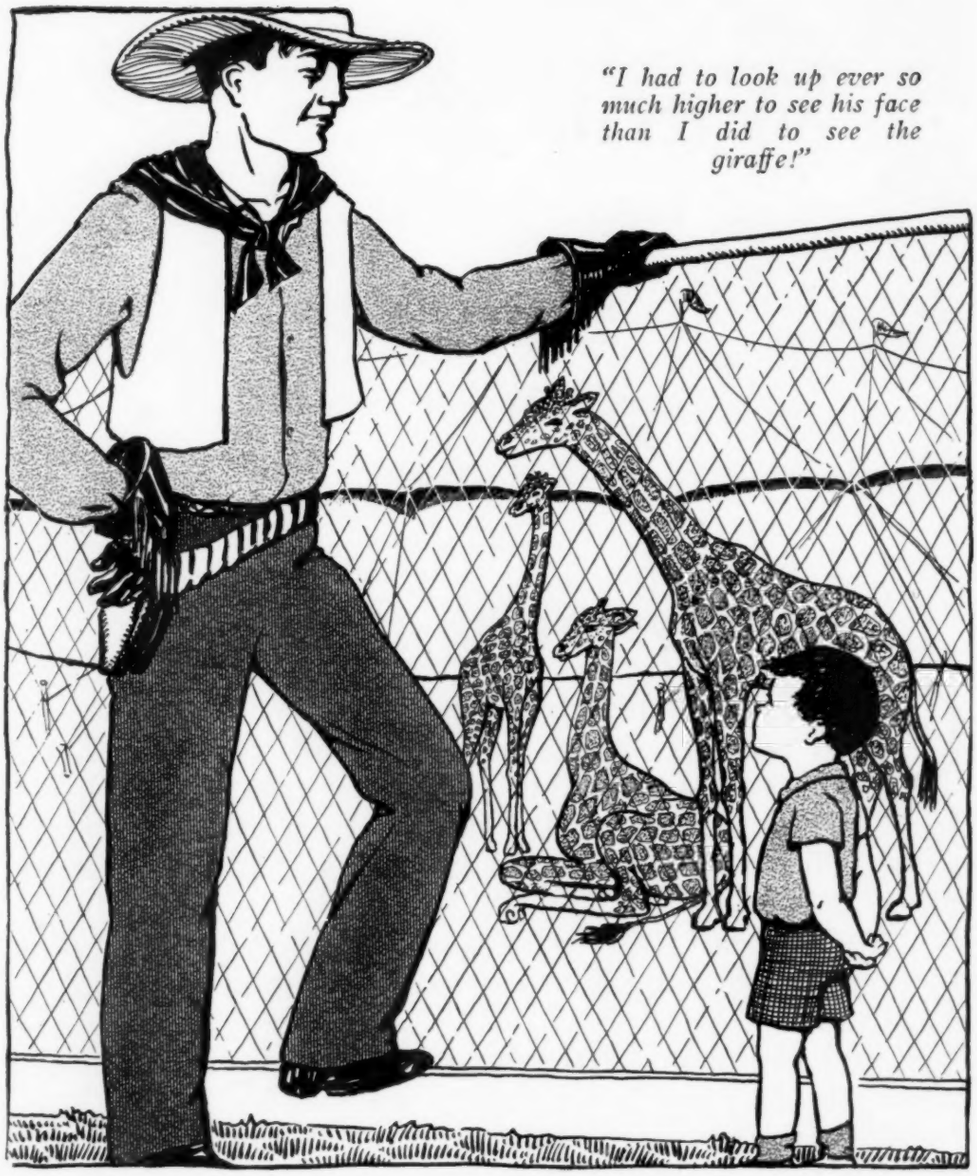
"Wasn't the fat lady the fattest thing you ever saw?" asked John with wide eyes. "She was as fat as a hippopotamus."

"And the tall man, wasn't he gigantic? I had to look up ever so much higher to see his face than I did to see the giraffe!"

"And the funny little dwarfs. I felt sorry for them. It must be awful to be grown-up and still be so tiny."

Jean and Jerry and John were all interested to know that the reason the fat lady and the giant and the dwarf had not grown up normally, the way most persons do, was that certain inside parts of them had not worked properly.

At various places in the body lie clumps of cells called endocrine glands. These glands are supposed to play a most important part in regulating growth. They have no tubes or other pathways connecting them with the other parts of the body; yet, mysteriously, they pour out fluids or secretions that affect every part. If they pour



"I had to look up ever so much higher to see his face than I did to see the giraffe!"

out wrong amounts, either too little or too much, all sorts of peculiar things happen. If they manufacture too much of their powerful fluid secretions, then we fail to grow and digest and work as we should. If they manufacture too little of their secretions, again we fail to grow and digest and work as we should. Therefore, persons whose glands do not secrete properly are often queer and peculiar not only in their appearance but also in the way they act. One little boy, for instance, whose glands did

not work properly, had a droopy, tired look, and he sat around and never felt like playing or reading or doing anything.

"Where are these glands," asked Jerry, "and what are they called?"

One of them looks like a little grape hanging underneath the brain. It is called the pituitary gland. Another, a larger, purplish mass, lies in front of the lower part of the windpipe in the neck and is called the thyroid gland. Near it lie four tiny glands called the parathyroids. Probably the fat on the enormous lady in the circus was caused by a failure of either the thyroid or the pituitary to manufacture enough fluid. The tallness of the giant, on the other hand, had possibly been due to too much secretion of the pituitary gland while he was growing up.

Two other glands, called the suprarenals, are perched at the top of the kidneys like small mushroom caps.

Somehow, the glands are also supposed to help us gain qualities that make us either men or women. The ovaries and testes, also glands, are most important in this way.

No one understands exactly how all the glands work or just what each accomplishes. Many facts concerning them are deep mysteries. For instance no one understands why another one of the glands, the thymus, should grow in the chests of children but should disappear when children get to be about 14 years old. The guess, of course, is that the thymus has finished doing what it was supposed to do and so is no longer needed.

Whether we are in general lively or quiet, jumpy or still, excitable or calm, gloomy or giggly is again supposed in some way to have something to do with the fluids manufactured by these queer little clusters of cells, which are to be found in various parts of our bodies and are called endocrine glands.

(To be concluded)

"I Want to Know" will be published in book form by Harper and Brothers under the title "My Body and How It Works."

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

A New Approach to Health Education

THE FIRST school physicians in the United States were appointed in Boston in 1894 following a series of epidemics among school children. Fifty physicians were employed. Their duty at first was limited to the discovery of contagious disease, but eventually the work of the school physician was supplemented by school nurses, school dentists and other trained experts in scientific medicine and hygiene.

As time went on, the work of the school physician became broader in its scope. He continued his efforts toward discovering and preventing communicable disease but was soon called on to give the children what was termed medical inspection to discover their physical defects. The nurse was employed to help the school doctor and to do follow-up work in the homes to secure corrections. For a long time it did not occur to any one that the physician or nurse should be regarded as an educator or that the classroom teacher should cooperate with the school physician.

Within the last decade or so the words "medical inspection" have given way to the term "health inspection." The purpose of such an inspection is not simply to find physical defects and to work for their correction but to discover children who depart somewhat from regular health norms and to influence them and their parents in such a way that illness may be prevented and abounding health promoted. One practical result of the so-called health inspection is the realization that the discovery of physical defects may be made the basis of health teaching. Children may be prepared for the health examinations by the teacher in carefully planned lessons. The tactful teacher may prepare the children so well that they will have little or no fear of the physician and will be ready to cooperate with him. It has become common for the teacher, nurse and one of the parents to be present at the health examination. If they are present, they are better able to understand the results and can hear the physician's suggestions as to what needs to be done. The teacher goes back to her classroom with a better understanding of her pupils; she is prepared to teach them those things that they need to know and do in order to recover and maintain good health.

Two articles on this newer aspect of the teacher's work appear this month in the School and Health Department of HYGEIA. One is contributed by Dr. Mabel E. Rugen, assistant professor of physical education, University of Michigan, and the other by Dr. I. H. Goldberger, assistant director of health education of the city of New York. Dr. Goldberger describes in some detail the specific teaching being done in the New York schools.

The Challenge of the Vacation

AGAIN vacation days are with us. Books and equipment have been put away in orderly fashion for the fall reopening. Report cards are made out. All the clerical work is finished. The schoolroom door is closed behind us. Once more we look out into many weeks of vacation.

The coming weeks should be a challenge. We may hope to return to our work refreshed in body and mind at the reopening of school. Whether or not we are able to accomplish this will depend on how we spend our vacations. Vacations should be recreational. This word carries the meaning of "recreating," making over again, changing ourselves. How shall we do this? There can be no one royal road because our needs are so varied.

Some teachers will find it necessary to work to earn money to make up for cuts in salary. Approached in the proper attitude, this may be a worthwhile adventure. It may offer a chance to learn something new about a trade or an occupation. Teachers are often accused of being so academic that they lose contact with the world around them. Teachers who broaden their experiences by new personal contacts will be able to see the school and their teaching in a new light.

Vacation will offer many of us a chance to recuperate physically. We may need to get back a reserve of physical and mental vigor. This may mean rusticating on a farm, sleeping long hours, drinking more milk, having our teeth taken care of or getting outdoor recreation.

Probably the heart of a good vacation is in doing something that we have long wanted to do but for some reason could not accomplish. To be able to take time to do just what one craves to do means not only fun but genuine satisfaction. One of my friends has become interested in color photography and hopes to experiment during the summer. She hopes to be able to do enough work for her friends and acquaintances to defray her expenses. Another friend wishes to learn a new language "just for fun." It is to be Italian. He is well supplied with numerous books and some new phonograph records presenting lessons in Italian. Next year he hopes to know enough Italian to speak the language with his Italian pupils and their parents. He hopes also to read many English books about Italy and the Italians. He is on the trail of the immigrant, and it should prove a stimulating adventure. Another acquaintance of mine is about to realize one of the dreams of her life. She has always wanted to fix up a place in the country. Early this spring she bought a dilapidated farm. The house is on a hill overlooking hills and lakes. She is looking forward to painting, decorating and gardening.

So the story might be continued. The essential thing is not what we do during the vacation but the spirit in which we do it. Practically every one, no matter what his problems may be, can spend some of his time in doing some of the things that his soul craves to do. To accomplish this may mean careful planning of time.

To Contributors:—*Although most of the articles in the column "Solving Health Educational Problems" are solicited, the editor of this department will be glad to consider contributions which deal with concrete and practical health education procedure in the school. Articles must not exceed 1,000 words.*

SOLVING HEALTH EDUCATIONAL PROBLEMS

Health Examinations and Measures for Correction of Defects

HOW HEALTH EXAMINATIONS MAY VITALIZE TEACHER'S WORK

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HEALTH EXAMINATIONS and the measures that lead to the correction of physical defects provide practical and effective means through which children can be taught right ways of living. Health examinations provide teachers with definite knowledge of the child's health status and furnish them the opportunity to help in the correction of discovered defects. Health examinations provide opportunities for teachers and school nurses to visit the home, to come in contact with the parents, to explain the objectives of the school health program and to obtain the cooperation of the parents. When the home is made to feel that it is part of the general school health program, health education acquires a new and powerful ally.

In the interim, while parents are being taught to feel and to assume their responsibilities for the health, safety and happiness of their children, the teacher proceeds with her health instruction in the classroom. She places colored seals on the top edge of the pupil's class record card to indicate the various defects discovered. Green colored seals are used to indicate defective vision, blue for defective hearing, black for defective nasal breathing, silver for defective nutrition, and red for heart disease. In this manner, defects are not likely to escape the notice of the teacher or others when pupils are transferred to other classes or to other schools. Where a departmental system is in operation, the subject teachers are made aware of existing defects by having the appropriate colored seals placed in the section book opposite the names of the pupils.

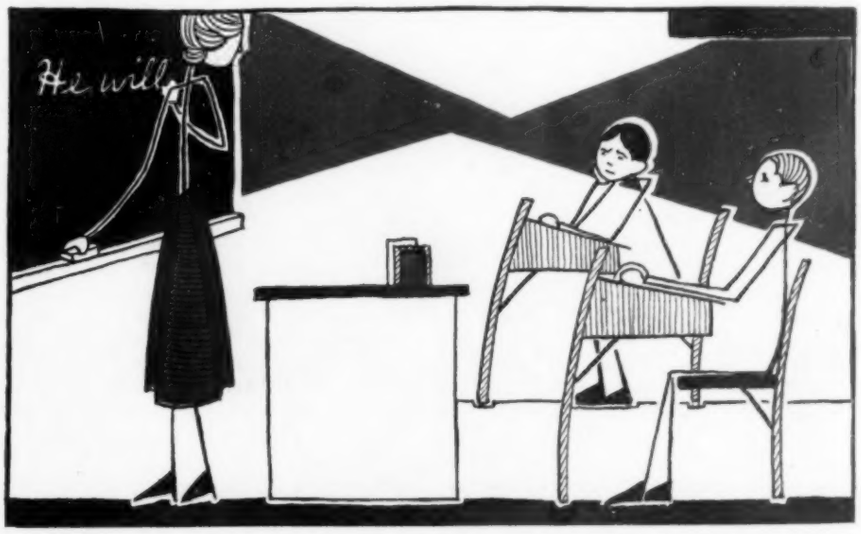
The discovery of pupils with defects of vision or hearing leads to selective seating in the classroom so that they can see and hear to the best advantage. Health training for handicapped pupils is a natural outcome of health examinations. Visually defective pupils and others are given a simple description of the structure and function of the eyes. Teachers stress the importance of good eyesight, not only in school but all through life. Pupils receive instruction in methods of safeguarding, conserving and aiding sight, special emphasis being placed on the need, when using the eyes, for sufficient and steady light without glare. The children are taught to hold reading matter in the proper position; to rest the eyes occasionally during long, continued periods of reading; to be able to detect symptoms of eye defects early and to use glasses to correct them; to avoid the dangers of eye infections from unclean hands, unclean handkerchiefs and common towels and to protect the eyes from hazards involved in play and in certain occupations.

The discovery of pupils with defective hearing provides the teacher with opportunities to give a simple description of the structure and function of the ear, for the benefit of all pupils; to explain the relationship between hardness of hearing and communicable diseases and to discuss the advantages of early immunization against diphtheria, scarlet fever and measles; to advise early medical attention to infections of the upper respiratory tract, such as colds, sore throat and sinus disease, and to caution against clearing the nostrils with force, in order to prevent involvement of the eustachian tubes and middle ears; to explain the relationship between enlarged adenoids, diseased tonsils and hardness of hearing; to urge the use of handkerchiefs to cover the mouth and nose during acts of coughing and sneezing in order to prevent the spread of infectious diseases to others; to point out that swimming with the head under water and diving are frequent causes of ear abscesses and subsequent loss of hearing; to describe the various kinds of noise in the community and in industry and their relation to difficulty in hearing, and to discuss methods of avoiding excessive noise. Deaf pupils are sent to special schools provided for the deaf, and lip reading classes are organized for the hard of hearing. Such a program of health education not only trains parents and pupils to exercise care to prevent deficiencies in hearing but also teaches them to seek early remedial measures to arrest the progress of existing defects.

All pupils receive dental certificates with printed instructions to parents requesting that a dentist be consulted every six months for surface cleaning, for possible reparative work and for instruction in dietetics, in the use of the toothbrush and in the general care of the mouth and teeth. On completion of the work these dental certificates are returned signed by the respective dentists.

Undernourished pupils receive individual as well as general class instructions explaining the nature and purpose of foods, the essentials of a balanced diet, and the planning of daily meals to meet their special needs. Having discovered the undernourished pupils, the school provides better lunchroom facilities and service for every child and midmorning milk for those who require it. The value of a rest period immediately after school is stressed as well as the need for at least ten hours of peaceful sleep every night in a well ventilated room. A concerted effort is made to have all pupils take vitamin D in some form in fall and winter.

Health examinations and measures for the correction of health defects have definite educational and health values and should be included in every school health



The discovery of pupils with defects of vision or hearing leads to selective seating in the classroom so that they can see and hear to the best advantage.

program. Health service and health instruction are the logical sequences of these activities. Health service results in healthful school and home environment, in the detection of early signs of illness to prevent the spread of communicable diseases, in the correction of physical defects, in vaccination against smallpox and immunization against diphtheria and scarlet fever. Likewise health instruction develops a health conscience by inspiring pupils with ideals and appreciation, by imparting authoritative information useful for healthful living and by training in good habits of hygiene.

HEALTH EXAMINATIONS AS BASIS OF HEALTH EDUCATION

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EDUCATION is an experiencing process. Health education is concerned with arranging such experiences as will enable the individual to become more aware of his personal behavior toward the end of achieving improved habits, practices, knowledges and attitudes of hygienic and proper living. The problem of so arranging the environment as to set up these experiences is the primary task of health teaching. Every aspect of the school health program, broadly speaking, has a contribution to make to health teaching. Every individual associated with the school health program, therefore, is a potential health teacher. His primary objective should be health education, and his chief interest the school child.

In the modern school the health examination is a common experience of the school child. In this examination the most important participant should be the child who is being examined. He is the one doing the real experiencing. It is his organism that is chiefly concerned. The physician, the dentist, the nurse and others actively engaged in the examining process become the teachers. It is they who must so manipulate the environment surrounding the child during the examination as to provide for the right kind of learning. The child should be their first concern. Not the child in terms of his defective tonsils or carious teeth or poor vision, but the child in terms of his curiosities and interests in the examining process and the results to be obtained therefrom.

In at least one school it has been found successful to prepare the children for the health examination by having the school physician give an illustrated talk regarding the nature and use of the various instruments employed in the health examination. The children, fourth graders in this case, then followed this experience by making their own appointments for their annual health examination with the school physician or, where the parents preferred, with the family physician. Questions raised by the children at the time of the examination were answered by the physician. The child experienced an understanding of the process and an appreciation for the values of the health examination.

This is the kind of knowledge children want. This is the kind of information the health examiner should be prepared to give. It is essential for a feeling of friendliness to exist between the child and the examiner. The child must feel free to ask questions, and he must not be afraid. His questions must be regarded seriously, and he must be made to feel that his health examination is important, not only to himself but to the examiner. Obviously, rapport of this kind will go a long way in establishing the correct attitudes toward the value of the periodic health examination after the child has grown to adulthood. Certainly one of the objectives of the health examination in the school should be to create a favorable and intelligent attitude toward the health examination as a necessary and routine procedure for best living.

A request for the ambulance to call at the home of a child who cannot get to school unless he is brought makes a responsible job for any group of small boys.

The junior high school student and the senior high school student can be similarly prepared for the health examination. When the child is experiencing the examination for the first time, preparation similar to that of the fourth graders could be used. When it is a repetition of an old experience, the child should be familiar with the reasons for the examination; he should be prepared to discuss with the physicians the results of his examination, and he should be ready to ask questions regarding any health problems or unfamiliar physiologic facts associated with the examination. The examiners, on the other hand, should be ready and willing to explain to the child the "whys" of the various parts of the examination: why the eyes are examined as they are; why the child is asked to run in place or take some other form of mild exercise when the physician listens to the heart; why certain laboratory tests such as urine and blood tests are made; why vaccination, blood pressure, posture and feet are important; in fact, the "why" of every part of the complete health examination.

Obviously the reason cannot be presented without considering also the actual result of the examination of the particular child. What does the result mean; is it "bad" or is it "good?" Is there or is there not something the child should be doing about it? If he should be doing something, what, how and why?

Utilizing the health examination as an educational experience for the child will have as its accompaniment the realization that the correction of defects is likewise essential. Most children are interested in being able bodied. They enjoy the feeling of buoyancy that accompanies general well being and a healthy organism. They are not interested in pain or the dire results that may come from a defect allowed to go uncorrected. They are interested in being at their best.

Health examinations and measures for the correction of defects are important educative devices in a school health program. They are only as effective, however, as the examining and service staff make them. Provided he is properly prepared for the experience, the child is usually a willing participant. The responsibility for making the greatest use of the health examination for health education and health teaching lies with the physician, the dentist, the nurse and others of the health service personnel. They must be teachers as well as examiners.

CLINICS NOW COME IN CLASSROOMS

HELEN BALL GRADY

HERE IS one for Ripley! Believe it or not a class room clinic conducted by fifth grade pupils in Oakland, Calif., is the place where Joe brings his dirty faced pal from the other side of town to have his face washed.

I had never heard of going to school to get cleaned up. Neither had any one else until Louise Strahan had a vision of what soap and water might do for a foreign neighborhood below the tracks. Now children in the Lazear school know that for them and their chums there is a clinic where an expert staff will do everything from giving a bath to treating minor cuts and bruises.

Starting with a program of cleanliness, the clinic has made its influence felt throughout an entire community. The good news of what soap and water would do has spread through the school, and the message taken by older boys and girls to parents has stressed the relationship between being clean and maintaining good health. Now baths are taken much more frequently in a neighborhood where the few bathtubs that existed had been used as coal bins.

The founding of this unusual institution was really an accident. Miss Strahan, as all good teachers do, thought that a health project was the one her class should work on when school started one fall semester several years ago. Instead of striving for an outstanding achievement by her class in language, spelling or arithmetic, she felt that health was the subject to be stressed.

She was right, for these pupils knew little about being clean. They actually came to school dirty, for their foreign-born mothers did not know the value of a good scrubbing. Then, too, many of the women were in such a hurry to get to the cannery where they worked that it was out of the question to take pains in cleaning up their children before school. But a transformation was effected when Miss Strahan's clinic started its good work.

A visit to the clinic is enough to convince any one that cleanliness comes first with these children today. Immediately inside the door is a low table on which are found a large white enamel wash basin, medicated soap, towels and numerous disinfectants to be used not only for cleaning purposes but also for the correction of skin and scalp infections.

When the clinic was first opened, Miss Strahan did all the treating and clean-up work herself. Then she explained the soap and water method and gave demonstrations. It was not long until the pupils began taking over the work themselves. Word spread of the wonders that soap and water were working up in the fifth grade clinic, and it was no time at all until other teachers began sending candidates there for treatment.

Soon the classroom equipment proved inadequate, and a bathroom was the next need of the clinic, which now felt the need of expanding in a big way. This was made possible when a discarded coat hall nearby was remodeled into a bathroom. The school now has an additional bathroom adjoining the principal's office.

Complete duckings have worked wonders with the children who never before knew the joys of a hot tub. In charge of this phase of the work as bath steward for the boys is Joe, the problem child of the fifth grade. He was given the task for punishment, but he is a big success with the scrub brush; and even though he is a problem in the classroom at times, he can be relied on when placed in charge of a candidate for the tub.

One of Joe's prize "patients" for after all this is a clinic, is Frankie whose home conditions are far from good. Sent to school early in the morning by his mother, who works in the cannery, Frankie does not have a chance to be clean. His three piece costume, consisting of shirt, overalls and jacket, is usually dirty. A word of warning from the health authorities to the negligent mother, coupled with the bath steward's missionary work at school, brought the following question from Joe when the younger child came up for inspection recently: "He's so clean, Miss Strahan, do I need to wash him today?"

Not only clean bodies but also clean teeth are stressed in the health campaign sponsored by the clinic. Each child in the room has his own tooth-brush, and the first thing he does in the morning after he has finished the lesson assigned is to leave his seat quietly and do a little tooth brushing.

The entire school has responded to a campaign for clean teeth with the result that tooth-brushes are found in all the rooms. When the school dentist made his annual visit this year, more money for repair work was brought from home by the children than ever before.

Another important phase of the clinic's work is its ambulance service. A broken wagon donated to the school was repaired and is in use for this necessary part of the health program. A corps of helpers consists of boys who can be trusted to obey traffic rules in crossing the street; no honor is greater than this.

Children who are injured on the playground may be taken home in the ambulance if necessary, after they have been given first aid treatment at the clinic. A request for the ambulance to call at the home of a child who cannot get to school unless he is brought makes a responsible job for any group of small boys to carry out. An S. O. S. from the kindergarten to take home a tiny tot who is ill or to call and pick up Tony who has a sore toe is all in a day's work.

The good news of what soap and water would do has spread through the school, and the message taken by children to parents has stressed the relationship between cleanliness and good health.

A BIBLIOGRAPHY
for solving health education problems

American Child Health Association: Evaluation of School Health Procedures, Monograph V, School Health Research Series. Price, 90 cents. Pp. 127. New York: American Child Health Association, 1933.

Pages 67 to 72 are devoted to a discussion of observations relative to the physical examination.

Claremont, Calif., Junior High School Health Committee: A Tuberculosis Survey in a Junior High School as a Means of Health Instruction. *University High School Journal*, Vol. 12, No. 4. March 1933. Price, 50 cents. Oakland: University of California High School.

Pages 196 to 212 illustrate a school's use of health instructional opportunities that arise in connection with public health measures.

Commonwealth Fund: A Chapter of Child Health. Price, $1. Pp. 169. New York: Commonwealth Fund, 1930.

Chapter IV describes "What Was Done for School Children" in Clarke County and Athens, Ga., Child Health Demonstration, 1924-1928.

Frisch, Ottilia: Putting Life into Objectives. Price, $1.50. Pp. 305. New York: American Child Health Association, 1934.

How public health measures may be made educational in rural schools is described in "Advances in Health Education," pages 7 to 12.

Metropolitan Life Insurance Company: The Doctor, The Dentist and The Nurse. Health bulletins for teachers, for parents and for boys and girls. Free. New York: School Health Bureau, Metropolitan Life Insurance Company, 1934.

Presentations of the purposes of health services from the point of view of three cooperating groups.

New Jersey Department of Public Instruction: A School Health Program for the Physician. Pp. 63. A School Health Program for the Nurse. Pp. 35. Trenton, N. J.: Division of Physical and Health Education, Department of Public Instruction, 1932.

These two bulletins contain many helpful suggestions for developing the educational aspects of health service.

Sanberg, G. H.: A School System That Makes Health a First Consideration. *The Nation's School*, Vol. 11, No. 5. May 1932. Price, 50 cents. Chicago: The Nation's School.

The author, who is superintendent of schools in Rochester, Minn., stresses the importance of an educational program in making these health services more effective.

White House Conference on Child Health and Protection: The School Health Program. Report of Committee III C. Price, $2.75. Pp. 400. New York: D. Appleton-Century Company, 1932.

Pages 83 to 125 and 249 to 265 refer to medical, nursing and dental services and to related administrative policies.

NEW HEALTH BOOKS
for teachers and pupils

THE BETTER training of classroom teachers is imperative if further progress is to be made in health education, for the burden of responsibility for the health activities of children rests with the classroom teacher rather than with the health specialist. This is the point of view of the author of "Health Education for Teachers."[1] Dr. Spencer has made a careful first-hand study of the school health programs in twenty-one teachers' colleges and normal schools. This was supplemented by a correspondence study of 144 other institutions. Dr. Spencer's study not only shows what seems to be typical of the training of teachers in teacher-training institutions but also suggests standards, whereby any such institution may measure its efficiency in training teachers to teach health in their classrooms.

MOST LEADING industrial concerns today realize that it is to their interest as well as that of their employees that all those employed should be healthy. Dr. Bristol, who has had a wide experience in industrial health service, has written a practical and readable book on industrial hygiene in "Industrial Health Service."[2] It is divided into three parts. Part I suggests a well rounded industrial health program. Part II offers an outline of instructions on health for the use of supervisory employees. Part III presents hygiene for the individual employees in popular style. The regular classroom teacher will find much of interest in this volume, although it will be especially adapted for classes in trade schools.

1. By Spencer, Mary Elizabeth. Pp. 118. New York: Bureau of Publications, Teachers College, Columbia University, 1933.
2. By Bristol, Leverett Dale. Price, $2. Pp. 170. Philadelphia: Lea & Febiger, 1933.

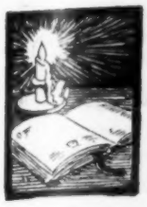
TEACHERS who wish a fresh approach to the subject of sleep will find this attractive pamphlet, "Refresh Yourself—What We Know About Rest and Sleep,"[3] most valuable. It sums up in an interesting fashion the results of the experiments on sleep undertaken by Donald A. Laird at Colgate University. Get a copy for your reading table. Use it as the basis for a number of lessons on sleep.

THE EYES have been referred to as "the windows of the soul." When one realizes that 83 per cent of all impressions come through the eyes, it is self evident that this phrase is an apt description. The eye is not only of fundamental importance in learning, but it is associated with the general health of the body. The eye of man was built for the hunter, fighter, trapper and fisherman, not for the reader. The invention of the printing press made the problem of eye hygiene of tremendous importance. This is the trend of thought in "Good Eyes For Life,"[4] one of the best books for teachers and parents that has recently appeared. It is exceedingly practical and is written in a pleasing style. It should have a wide use in teacher-training institutions.

TWO EXPERTS in the modern training of children have written a book, "Child Care and Training,"[5] which should be helpful for all parents and teachers who have responsibilities for the welfare of young children. The book is not sentimental but is based on the best psychologic theory and practice. A large part of the book is concerned with health habits.

ACCORDING to conservative estimates there are about 3 million persons in the United States who have either lost their hearing or are in danger of becoming totally deaf. Today there are thousands of children in public schools who cannot profit from regular school instruction because of deafness. Many of them are as yet undiscovered. Some states do not yet require ear tests. Such facts should make the "Proceedings of the Fourteenth Annual Meeting of the American Federation of Organizations for the Hard of Hearing"[6] and other material published by the same organization valuable to teachers.

3. Pp. 16. New York: National Tuberculosis Association, 1934.
4. By Henderson, Olive Grace; and Rowell, Hugh Grant. Price, $2. Pp. 202. New York: D. Appleton-Century Company, 1933.
5. By Faegre, Marion L., and Anderson, John E. Price, $2. Pp. 274. Minneapolis: University of Minnesota Press, 1929.
6. Pp. 84. Washington, D. C.: The American Federation of Organizations for the Hard of Hearing.



New Books on Health

THE ROAD TO ADOLESCENCE

By Joseph Garland. Cloth. Price, $2.50. Pp. 293. Cambridge, Mass.: Harvard University Press, 1934.

ONE of the most delicate periods in the life of the child is that from the ages of 5 to 15, the period in which changes occur from boyhood and girlhood to manhood and womanhood. It is a period in which the mind also awakens and in which the child begins to seek information that usually is not easily available. The book prepared by Dr. Garland is planned particularly to aid parents and teachers in guiding the child through this period. He begins his book with a copy of the Children's Charter which grew out of the White House Conference. He considers the importance of heredity and environment in the growth and development of the child and then supplies some essential information concerning the structure of the body during this period.

Such subjects of personal hygiene as sleep, fatigue and posture are also given careful consideration, as well as nutrition and diet. This information is provided in a form so simple that any intelligent reader can understand it. A discussion of the nature of sickness and the factors to be considered in its recognition follows with some attention to the use of vaccines and serums in immunization. There is an outline of first aid and a consideration of the questions raised in home, school and camp.

Dr. Garland is concerned with the care of the handicapped as well as the gifted, and he concludes his treatise with a study of mental hygiene. The book is full of practical and useful information for every parent.

MORRIS FISHBEIN, M.D.

CORRECTIVE PHYSICAL EDUCATION

By Josephine Langworthy Rathbone. Cloth. Price, $2.50. Pp. 292. Philadelphia: W. B. Saunders Company, 1934.

IT IS not possible for all of us to develop the characteristics of Adonis or Venus de Milo. It is possible, however, for more and more human beings to avail themselves of what science has to offer so as to approximate normal appearance of their bodies and a normal manner of functioning of their nerves, muscles and other organs. The book here discussed is a correlation between scientific medical knowledge and modern physical education. It is concerned with the correction of physical defects and mental maladjustments, but it deals primarily with the development of sound bodies through exercise. So much hokum is available on the subject that it is well to have a simply prepared useful text for all those interested in physical education.

M. F.

ALCOHOL, ITS EFFECTS ON MAN

By Haven Emerson. Cloth. Price, $1. Pp. 114. New York: D. Appleton-Century Company, 1934.

LIGHT on the alcohol problem without heat has long been needed. This little book states in a clear, fair and dispassionate manner the advantages and disadvantages inherent in the use of alcohol by man. It considers alcohol as a food and concludes that as a food it is not worth while. It considers alcohol as a beverage and leaves with the reader the question as to whether or not the advantages are outweighed by the disadvantages.

A summary of the book is contained to all intents and purposes in the preface in fifteen brief paragraphs that are presented as points on which students and teachers of medical and associated sciences agree. These are that alcohol is a narcotic; as a beverage it has little effect outside the nervous and digestive systems; its usefulness as a food is extremely limited; probably its hereditary effects are slight, but its effects on the individual are devastating; its therapeutic usefulness is small; it may be a comfort to the aged; it does not increase resistance to infection; it releases inhibitions, and in this fact lies at once its social value and its greatest danger; its effects are manifested in changes of conduct; it interferes with "reason, will, self-control, judgment, physical skill, and endurance"; it produces crime and social lapses; it is a destroyer of "health, happiness, and mental stability"; it "lowers longevity and increases mortality."

The book is based on authentic sources, and the author handles his subject in a calm and noncontroversial style, though quite obviously he is in no doubt that when all the evidence is in, alcohol finds no place among the blessings of mankind. The book should be useful to teachers who desire to impart scientific instruction to their pupils. It will find no favor among extreme partisans. The keynote of the book is its concluding paragraph: "If the school children of the next few decades are taught the facts about alcohol as these are known, through the use of the scientific and experimental methods of the medical and social sciences, they and their children will be in a position to determine a rational personal and governmental attitude toward commerce in, and beverage use of, alcohol, and they may then avoid the extremes of partisanship in argument, the pitfalls of political exploitation of voters, and the misinterpretation of knowledge by commercial interests and the press, which together have made so pitiful an exhibition of our people during the past twenty years."

W. W. BAUER, M.D.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

QUESTIONS AND ANSWERS

Lockjaw

To the Editor:—Please give me information concerning the disease known as lockjaw.

E. B., Indiana.

Answer.—Lockjaw is a disease caused by a germ which lives in the intestines of domestic animals and consequently contaminates the soil of barnyards, pastures, country roads and city streets to the extent to which horses and domestic animals are to be found in these localities. Gardens fertilized with the manure of domestic animals also constitute a source of danger.

The germ can live a long time in the soil, where it forms a resistant stage known as a spore. Spores are not destroyed by boiling as are most germ forms. Spores do not grow. The germ grows only where there is no oxygen, as in the intestines of domestic animals or in the deep tissues of the human body, where air does not have access. The germ may be carried on any sharp instrument that has been in contact with the soil, as, for example, a nail, a rake or a pitchfork. A rusty implement is more dangerous than a shiny implement only to the extent that rusty implements have more dirt sticking to them than do smooth, shiny implements. The contamination with soil containing manure is the important factor, not the presence or absence of rust on the piercing instrument.

Fourth of July injuries are frequently followed by lockjaw not because the powder of fireworks contains the germ, but because the powder blows germs which are on the skin into the tissues. In former days when horses were common even in cities and when children used the manure-infested streets for shooting off fireworks, their hands were almost always soiled with dirt containing lockjaw germs which by action of the powder were permitted to penetrate the skin.

When the lockjaw germ gets into deep tissues, it proceeds to grow. In its life process it manufactures an extremely powerful poison which is absorbed by the nerves and travels along the nerves or in the blood to the brain, there producing convulsions and ultimately, as a rule, death.

Once lockjaw has developed, it is difficult to treat. The only specific treatment is tetanus (lockjaw) antitoxin; for successful treatment the antitoxin must be administered in large doses. On the other hand, it is easy to prevent lockjaw by proper attention to wounds and the prompt injection of lockjaw antitoxin.

If all puncture injuries and fireworks casualties were immediately treated by a physician and if lockjaw antitoxin were given at once, there would be few cases of lockjaw.

Children Sucking Fingers

To the Editor:—Do you know of any bitter or disagreeable mixture that can be applied to the fingers of a child who sucks her fingers constantly? When thumb guards are used, she sucks her other fingers. The child is 4 years old and pulls or pushes the fingers of one hand through her hair while she sucks one finger of the other hand. I have tried cuffs over the elbows, but she is so cross and irritable when they are used that I have given them up also.

A. T. R., Wisconsin.

Answer.—Sucking the fingers or biting the nails is a common habit in childhood.

There are a great many bitter and disagreeable mixtures that can be applied to the fingers of a child who sucks them constantly. Tincture of valerian, tincture of asafedita and compound tincture of gentian are such preparations, but it is doubtful whether they will do any good. Unfortunately, not all children who suck their fingers are discouraged by bitter and disagreeable tastes or by thumb or finger guards of metal.

Cuffs over the elbows are probably the best; and if the child is cross and irritable, parents must simply make up their minds to see it through and endure the irritability. Children are too intelligent to struggle indefinitely under such circumstances; and if determination is used, the problem can probably be solved.

In situations where there is a habit problem, overemphasis by parents frequently intensifies the difficulty. It is possible to pay too much attention to the habit and to concentrate solely on negative measures. A child 4 years old ought to have constructive toys such as puzzles, things to cut, molding clay, building blocks, miniature kindergartens which include hammer and nails and blocks to pound them into, and all kinds of materials for keeping the hands and mind busy. More is to be accomplished by positively engaging the child's attention in something else than by negatively concentrating on the annoying problem.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Detection of Pregnancy in Nursing Mother

To the Editor:—A woman, aged 30, is the mother of a first child, a 5 month old baby whom she feeds by nursing supplemented with formula feedings. At the present time she nurses the child once or twice daily, the breast milk having decreased considerably during the past month. While the baby nurses, the mother experiences pains in the pelvic region, the lower portion of the back and the abdomen. These pains are felt during every nursing and frequently at other times. Infrequently, there is a slight feeling of nausea though it is not pronounced. Menstruation has not been resumed. Is it probable that pregnancy has taken place? If so, how soon may the fact be determined definitely and by what procedure? How would the earliest stages of pregnancy be determined, before life may be felt?

E. S., New Jersey.

Answer.—Pelvic pain accompanying the nursing may be due to reflex causes; so may nausea. The uterus may have failed to return completely to normal. The attending physician should be consulted for a pelvic examination.

It is impossible to tell without seeing the patient whether or not it is probable that a pregnancy has taken place under the circumstances described. It will, however, be possible to find out immediately through the so-called Ascheim-Zondek test for pregnancy. This test is made by a laboratory examination of the urine of the patient in whom pregnancy is suspected, and it is highly accurate long before life can be felt. It should be arranged through the patient's family physician.

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Also, this improved milk satisfies to perfection every milk and cream need of kitchen or table. It does better cooking. It is double-rich and creamy-smooth for coffee and cereals. It is a nutritious, appetizing milk for boys and girls to drink.

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Ask your grocer for it. Look for the word "Irradiated" *on the label. And write, please, for two valuable free booklets—"100 Glorified Recipes" and "Contented Babies." Address Carnation Company, 910 Milwaukee Gas Light Building, Milwaukee; or 1011 Stuart Building, Seattle; or Carnation Company, Limited, Toronto, Ontario.*

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What would you like to do in order to have a complete change? Motor, hike, or take a trip by rail or steamer? Will you go deep into the woods near a lake or a mountain? Or sun yourself on the beach at a summer resort? Active sports or quiet leisure, or both?

But while you are happily planning your vacation and thinking of the good times and the rest you will have, keep in mind that people are more likely to be hurt or to hurt themselves when in strange surroundings than when in familiar ones. Don't let your vacation be spoiled by a needless mishap. You can guard against most accidents.

Metropolitan Life Insurance Company has prepared a booklet "First Aid" which tells you what to do in event of accidents. Send for your copy, read it and take it away with you.

VACATION "DO'S" AND "DON'TS"

At Ocean, Lake or River

Know how to resuscitate in cases of apparent drowning.
Do not go in swimming when overheated, or within two hours after eating.
Never go in bathing alone at any time, even if you are a strong swimmer.
Do not dive unless you are sure of the depth.

In the Woods

Don't drink from wayside springs, streams or strange wells, unless the water is boiled, in order to avoid intestinal or other disorders.
If you come in contact with poison ivy or poison sumac, wash exposed part in at least five rinsings of soap and water. In a serious case, see a doctor.
Break a burned match before dropping it, to be sure that the flame is extinguished. Never leave a fire or embers burning.

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In case of fire caused by gasoline or kerosene, smother flames with sand or dirt, or with blankets, coats or other heavy woolen articles. Never use water.
Never throw away a lighted cigarette or cigar. Grind it out. Get a "First Aid" booklet and keep a First Aid kit at hand.

The Metropolitan's free booklet, "First Aid" tells what to do and how to do it—at home as well as when you are away—in event of broken bones, burns, sprains, poisoning, apparent drowning, fire, wounds, electric shock, bites, sunburn, sunstroke and common accidents of various kinds.

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Brushing of Teeth

To the Editor:—Many books on the care of the teeth differ on the subject of how the teeth should be brushed. Can you give me some information on the brushing of the teeth and the best methods to use? M. J., Wisconsin.

Answer.—The method of brushing the teeth most commonly advocated by dentists is known as the rolling method. This consists of holding the mouth slightly open and brushing the teeth of the upper jaw and the teeth of the lower jaw separately. In brushing the upper teeth the bristles of the brush are placed on the gums above the necks of the back teeth. By rotating the wrist, the bristles of the brush are drawn downward with a sweeping motion from the gums, over the necks of the teeth to the biting surfaces. This movement is continued ten or twelve times, and the brush is then moved forward to a new position in the mouth.

The lower teeth are brushed in the same way except that the bristles of the brush are swept upward from the gums to the biting surface. The "inside" surfaces of the teeth, that is the surfaces next to the tongue, and the biting or occlusal surfaces should also be brushed.

Some dentists advise the rotary method of brushing the teeth. When this method is used, the teeth are held in close apposition and the bristles of the brush are swept in a circular fashion from the upper gums, over the surfaces of the teeth to the lower gums and upward to complete the circle. In employing this method, one must revert to the rolling method to brush the inside surfaces and the occlusal surfaces of the teeth.

The third method consists of inserting the bristles of the brush between the teeth in the region of the gum line and vigorously "shimmying" the handle of the brush, being careful not to dislodge the points of the bristles from their original position.

Persons with normal teeth and gums can usually clean their teeth satisfactorily with the rolling method. A person with infected gums should consult a dentist for a special toothbrushing technic.

How necessary health is to our business and happiness, and how requisite a strong constitution able to endure hardship and fatigue is to one that will make any figure in the world, is too obvious to need any proof.—*John Locke.*

"Healthy days are here again"

WISE parents! Wise physician! When this child's nose ran and her ear was infected, no chances were taken that might have led to permanent impairment. An x-ray examination of the mastoids and sinuses was made to be certain that they were not involved.

Mastoid and sinus infections frequently follow colds, influenza, or measles. Special precautions must be taken to guard against serious developments. If infection reaches the mastoids or sinuses, it should be detected quickly, so that treatment can be prompt. X-rays make possible such early detection.

See your physician regularly

But don't wait until you or your children are sick. Staying well is far easier, much more comfortable, and less expensive than getting well. At least once a year go to your physician for a health examination. Be sure it is a thorough one, with x-rays. For radiographs provide graphic information about many diseases or disorders long before they produce symptoms sufficiently marked to be recognized otherwise.

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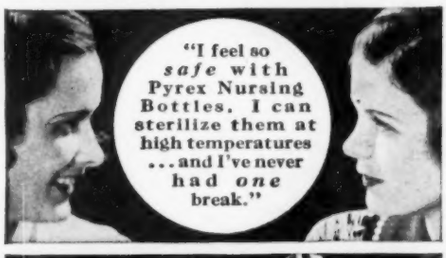

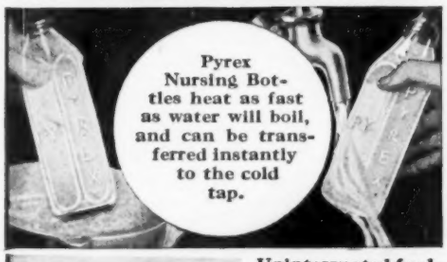

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Do You Know—

1. The best way to reduce? *See page 599.*
2. The four main considerations in the care of the teeth? *See page 612.*
3. How to arrange food in a refrigerator? *See page 626.*
4. The only two methods of value in treating skin cancer? *See page 590.*
5. What part Paul Revere played in stamping out smallpox? *See page 620.*
6. Some economical foods advised by physiologic chemists? *See page 633.*
7. How to administer artificial respiration? *See page 644.*
8. Why there should be plenty of light in the room where the baby sleeps? *See page 594.*
9. How to make the use of fireworks as safe as possible? *See page 586.*
10. Why many iron claims and blood building claims in food advertising are incorrect and misleading? *See page 616.*
11. The best way to get rid of bedbugs? *See page 641.*
12. The method of government meat inspection? *See page 623.*
13. How secretions of the parathyroid glands affect the bony structure of the body? *See page 630.*
14. How many persons with muscular inefficiency due to birth injury may be taught to use their muscles? *See page 609.*

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what helps him to behave rightly, you would never have a moment's trouble with him. Reading this sane, pleasant little booklet by two trained specialists is almost the same thing!

"Training the Child to Obey"

by Smiley Blanton and Margaret Gray Blanton

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A CENTURY OF PROGRESS CITY IS HEALTHIEST U. S. METROPOLIS

Results of the Intercity Health Conservation contest, sponsored by the Chamber of Commerce of the United States, show that Chicago ranks first among the cities of the United States with more than a million population. The report is based on a study of comparative health records during the year 1933.

One of the chief factors contributing to Chicago's healthfulness is the city's climate and its location in relation to Lake Michigan, which moderates both summer and winter temperatures so that they are rarely extreme.

Chicago also ranks first in the world in its control of preventable diseases. Although Chicago entertained 6 million visitors to A Century of Progress last year, precautionary measures against communicable diseases were so well planned that the year ended with health conditions at their finest and a death rate in 1933 of 9.7 per thousand population, the lowest in the history of the city.

The city's water supply from Lake Michigan is kept clean by giving the health department jurisdiction over the lake for almost 15 miles out from shore. This gives the department control over the sanitary facilities of ships entering the harbor and prevents the dumping of excavated materials by scows.

Great strides in the protection of the city's milk supply were taken during 1933. At the end of the year, Chicago's per capita consumption of milk exceeded one pint a day, derived 100 per cent from tuberculin tested herds.

"Poor posture" is a sign that the child needs a careful and complete medical examination to discover the underlying cause of poor posture. The poor posture, like toothache, is really nature's warning that something is wrong and the child needs the physician's help to discover what the "something" is and to tell him how to correct it. When the cause is removed or corrected, the poor posture usually disappears. Treat the child, not the posture.

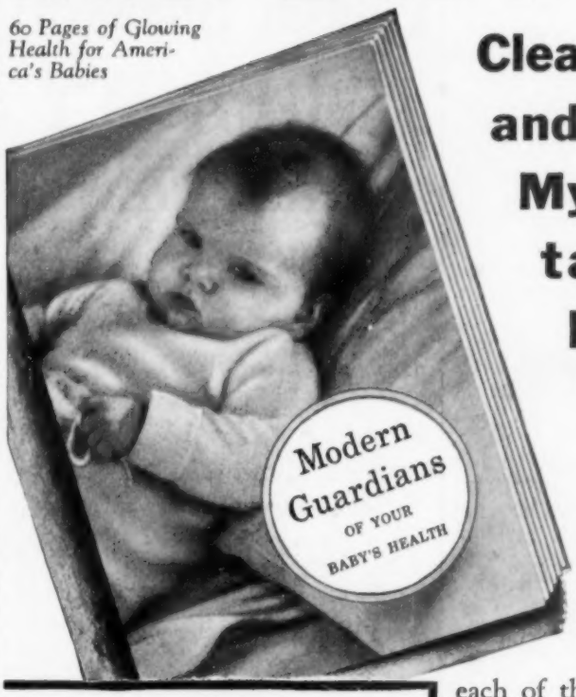
Some of the grotesque attitudes in which children sit or lie have a real purpose back of them, for they relax the child's tired muscles and let him "rest up" most quickly.

—LeRoy A. Wilkes.

Negligence, indifference, ignorance and false economy—not the Lord—make the death rate high.

NEW BABY BOOK

60 Pages of Glowing Health for America's Babies



Clears Up, Once and for All, the Mystery of Vitamins and Minerals in Your Baby's Diet

Does your child get enough of the types of vitamins and minerals most needed? How can one be sure? What does each of the vitamins and mineral salts do for your baby? What suitable foods are they found in? How can we be sure that the strained vegetables baby gets have sufficient vitamin content after being cooked?

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Merely fill in the coupon and mail with the labels from three cans of Heinz Strained Foods. If your grocer does not carry them, merely send 10¢ to help defray handling costs.

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Higher in Vitamin Content than Most Home-Prepared Strained Foods

Impartial tests reveal that Heinz Strained Foods retain a higher vitamin and mineral content than do ordinary home-cooked vegetables and fruits.

They do away with the tedious home preparation, because they come to you ready to warm and serve. They are vacuum-packed in enamel-lined tins. Babies eagerly accept them because of their fresh color and flavor.

Try three or four varieties of Heinz Strained Foods this week, and be assured that your baby receives a uniform quota of precious vitamins and minerals. Ask your grocer today.

Heinz Strained Foods include 8 varieties—Mixed Vegetables, Peas, Green Beans, Tomatoes, Carrots, Spinach, Beets and Prunes

HEINZ Strained Foods

A Group of the 57 Varieties

YOUR CHILDREN'S EYES

(Continued from page 597)

place. Having heard these rumors, a friend of the parents of the boy went to the mother and suggested an examination of the child's eyes as there might be a possibility that he could not see well.

The child was then brought to the oculist, who found that he was an exceedingly tractable patient, as he was quick in his responses and cooperated thoroughly during the examination. An extraordinarily high degree of myopia, which accounted for all his difficulties, was discovered. The boy was so nearsighted that he had never seen the complete face of any one. He was existing in a world of blurred objects and lights, and was being guided principally by voices. On the particular day of which I spoke, he had come close enough to his playmate's face to see her nose; and as this was the first nose he had ever seen, he naturally bit at it to determine what it was like. Poor vision accounted for the excessive use of his hands in playing. Corrective lenses were prescribed, and immediately he was a different child. He has been brought every year for reexamination, and from his first days in school he has held high scholastic records. Tragedy would have befallen this splendid boy if his parents' friend had not suggested to them that they have the child's eyes examined.

SCIENCE VS. SUPERSTITION

Aristotle believed that women have more teeth than men. He never thought it necessary to verify the fact by actually examining the teeth of men and women, for in his day scientific method did not exist. Theories were thought out by a process of looking into one's own mind rather than by observation.

Disease was once thought to be spread by miasms, noxious air coming from damp swampy places and perhaps cursed by witches. Pestilences such as smallpox and yellow fever were the work of an avenging Providence. Only a generation ago persons with tuberculosis were not allowed to breathe the "dangerous air" of night.

But the progress of new ideas is slow. For fifty years the cause of tuberculosis has been known, and still today scientific knowledge is not applied to the extent that it could be applied, *The Health Pilot* says. The tubercle bacillus is a germ only $\frac{1}{8,000}$ inch in length. If the passing of these germs from sick patients to well persons could be checked, tuberculosis would entirely disappear.

WARDS OFF Painful Sunburn!

A BEAUTY TREATMENT *FOR YOUR SKIN*

Before and after exposure to the sun — on the beach, outdoors anywhere—rub on some of this fragrant, bland, liquid cream! Men and children, as well as women, find it splendid.

Nivea Skin Oil doubly benefits your complexion. For its skin-related element, Eucerite, swiftly replenishes the skin's normal lubricant lost through drying exposure to wind and sun. This same Nivea Skin Oil also protects your skin against sunburn.

Nivea is most economical, too.

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Send 10c in coin or stamps for a generous trial quantity of

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46-10 11th Street, Long Island City, N. Y.

I enclose 10c for a generous supply of Nivea Skin Oil.

Name.....

Street.....

City.....State.....

REFRIGERATOR FACTS

(Continued from page 629)

ture is poured uncooled into the tray.

The refrigerator temperature is raised rapidly when the door is opened. A definite place on the shelves for each kind of food facilitates rapid decisions when the door is opened. Glass containers show their contents and thus cut down the time that the door must be left open.

The drain pipe of an ice refrigerator must be kept open and sanitary by frequent cleaning with a long brush which will actually remove sediment and slime.

There is some possibility that an automatic refrigerator will become slightly out of adjustment and need the attention of a service man; therefore it should be checked up occasionally to ascertain whether its performance is correct. It should freeze ice cubes. The fact that some refrigerators will not freeze ice cubes when loaded with the usual amount of food supplies should be considered. In most homes it is desirable that ice cubes are available and for this reason some older automatic refrigerators are being replaced with new ones which offer greater freezing power and speed.

The operation should be reasonably quiet, since most refrigerators are placed directly in the kitchen to save steps. If the refrigerator becomes noisy after some months, it may require servicing.

A new refrigerator should be thoroughly cleaned and cooled before food is put into it. Occasionally an odor from the paint or finish will be noticed in a new refrigerator, but otherwise, there should not be any bad odor. If an undesirable odor is present, remove everything from the refrigerator and wash it thoroughly, including the coils and the freezing trays. Dry everything thoroughly and leave the doors open to air it. Then chill the refrigerator and place in it only absolutely clean, fresh food. A malodorous condition may result when foods are strong or slightly spoiled, when they have been spilled or when their odors have been absorbed by the moist coils.

Some years ago, leakage of the refrigerant in appartment house installations received considerable publicity. These earlier installation difficulties were corrected, however, and such leakage does not occur today. The refrigerant is expensive to replace; hence extreme care is exercised to avoid leakage in the manufacture of the individual household refrigerator and in the installation of apartment house refrigerators. Such leakage would be

REFRIGERATOR FACTS

detected by odor or by failure to secure refrigerator operation and could not go undetected. Foods may be healthfully refrigerated in any type of refrigerator, but it is important that the refrigerator shall maintain the correct low temperatures, especially in severely hot weather.

Sweating of the box is not a serious condition. It is usually noticed in exceptionally hot weather. If it occurs in moderate weather, a check-up may be made by a service man.

Too warm a box may indicate need for adjustment. Test with a thermometer, to make sure the condition actually exists. The temperature on the center shelf should be about 50 F. Possibly the only solution to the problem of a warm refrigerator will be the selection of a new one. Too cold a box may also indicate need for adjustment. At the thermostatic setting for everyday use, when not freezing desserts, the temperature should not be lower than 45 F. on the center shelf. A lower temperature, under ordinary conditions, is neither economical nor necessary.

The motor should not run all the time, except in extremely hot weather, or if the refrigerator is located in a hot kitchen, or when desserts and ice cubes are being frozen. With these exceptions, if the motor is running all the time, it may be that an adjustment can be made, although this is not necessarily true since the motor may be small or there may not be enough air space for good ventilation around the refrigerator.

Motors having low power consumption, ⅛ or ¼ horse power, are used. One refrigerator used 190 watts at room temperature below 80 F., 200 watts at 80 F., 225 watts at 90 F. and 250 watts at 100 F. Similarly, ice melts faster when the weather becomes hotter. This electric refrigerator would freeze ice cubes and maintain correct temperature in the food cabinet on the hottest days.

We housewives have become so accustomed to modern wonders, which we do not understand and which seem almost like magic, that we take them all for granted, not caring how it all happens as long as right results are produced in home operation. However we must remember that in order to bring about our present freedom from household troubles, sound engineering principles have been followed and a great many brilliant minds have worked on the problems that

(Continued on page 666)

"I JUST LOVE IT... IT TASTES LIKE CHOCOLATE SODA"
says: Sally Brown

"You'd never believe it was the same child_

She's developed wonderfully drinking milk this way"

says Mrs. Sarah F. Brown
60 Prospect Avenue,
Larchmont Manor, N. Y.

"I used to worry so about Sally! Her arms and legs were like little sticks; she was so thin and frail.

"But you ought to see her today! Her arms and legs are nice and round, and she has developed wonderfully in every way.

"The change came when I began giving Sally Cocomalt mixed with milk. She had never cared much for plain milk, but when I began mixing it with Cocomalt—how she loved it! In a very short time she began filling out, and now she is real solid and sturdy."

Cocomalt supplies *extra* proteins, *extra* carbohydrates, *extra* minerals (food-calcium and food-phosphorus). It contains Sunshine Vitamin D (105 U.S.P. units irradiated ergosterol per ounce). *The bone-building* Vitamin D has been added to Cocomalt by special process, under license by the Wisconsin University Alumni Research Foundation.

Cocomalt comes in powder form only, easy to mix with milk. Delicious HOT or COLD. At grocery or good drug stores in ½-lb., 1-lb. and 5-lb. air-tight cans.

Special trial offer: For a trial-size can of Cocomalt, send name, address and 10c (to cover cost of packing and mailing). R. B. Davis Company, Dept. 9-G, Hoboken, N. J.

Cocomalt is accepted by the Committee on Foods of the American Medical Association. Prepared by an exclusive process under scientific control, Cocomalt is composed of sucrose, skim milk, selected cocoa, barley malt extract, flavoring and added Sunshine Vitamin D.

ACCEPTED AMERICAN MEDICAL ASSN

Cocomalt

Prepared as directed, adds 70% more food-energy to milk

REFRIGERATOR FACTS

(Continued from page 665)

caused difficulty in the original refrigerators.

Refrigeration would be unnecessary if it were not for the organisms causing food spoilage. Useful molds are carefully introduced into cheese for the development of flavor in Camembert and Roquefort cheese, to avoid those molds which would produce an undesirable flavor. The harmful molds cause spoilage. Their seeds are always in the air and if foods, such as potatoes and white sauce, are placed in a damp atmosphere above 50 F., they will be covered with a filmy blanket of mold within two or three days. If mold is detected on food, a thick layer of food should be discarded, so as to include the roots of this plant growth that extend beneath the surface.

Enzymes cause natural ripening and final decay of fruits and vegetables, which are living things. Self destruction is a natural process wherein the digestive enzymes of an animal or vegetable organism attack it and cause decomposition.

Some bacteria are useful in the production of vinegar and buttermilk, the fermentation of pickles and sauerkraut and the manufacturing of some kinds of cheeses. However, the majority of bacteria are harmful, because they produce a toxic material.

Diseases that may be caused by microbe development in foods are typhoid, paratyphoid, dysentery, septic sore throat, tuberculosis, scarlet fever, diphtheria, foot and mouth disease, infantile paralysis, undulant fever, summer diarrhea, tapeworm, and trichinosis. Although most bacteria are killed by boiling water, others produce hardy spores that are resistant to high temperatures.

Methods of arresting bacterial growth include boiling, drying to reduce moisture content below that necessary for growth, and the use of preservatives such as sugar, salt, vinegar, spices and benzoate of soda, which is allowed in small amounts in some foods. Washing of vegetables under running water with considerable force from a faucet will remove clinging soil and bacteria.

Storage of food at low temperature arrests the development of micro-organisms. Bacteria are "cold blooded," and their life processes go on slowly at low temperatures. A few kinds of bacteria are killed at refrigerating temperatures or freezing temperatures.

Cold storage plants employ temperatures best suited to various foods to prevent their shrinkage and deterioration. Foods are held in the household refrigerator only a few days, or even a few hours; hence it is not required that temperatures be nearly so low.

The requirements of the individual household differ widely. One family may entertain a great deal, in which case considerable freezing space and a deep drawer for storage of frozen foods is wanted. While such conveniences make the operating cost higher, this is not considered important to the ambitious hostess who desires to serve a wide variety of foods at their tempting best. A second family may use a large automatic refrigerator for purposes of economy and operate it to give temperatures which are low enough to keep the food. In this case little use is made of the freezing trays, which increase current consumption. Groceries for this family may be purchased twice a week at advantageous prices. A third family may have a new, well constructed, porcelain lined ice refrigerator, with rigid, efficient wall insulation and tight construction to prevent absorption of moisture into the wood. In such a refrigerator it is possible to maintain temperatures that are low enough to keep the food for short periods of time. Food may be purchased in small amounts and used promptly before it has time to spoil.

With such careful selection of the type of refrigerator best suited to their needs, these three families may work out their individual refrigeration problems in an efficient manner in keeping with food budgets and personal requirements.

NEW GUARANTEE
against bottle breakage from any cause

A most amazing offer

PURCHASERS of six Hygeia Nursing Bottles and six Nipples now get a Guarantee against bottle breakage *from any cause whatsoever.* Details in new blue cartons. The Hygeia Bottle has no shoulder or neck to collect *dirt.* No brush or funnel needed to clean or fill it. The Hygeia Nipple does not collect food particles. Patented tab keeps fingers from sterilized inside surface. Patented reinforced base resists nipple collapse. Dirt causes intestinal disorders. Use Hygeia Bottles and Nipples. *Use Hygeia Strained Vegetables too.*

Hygeia *The Safe Nursing Bottle*

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"Dr. Ira Wile describes the book as a clear, succinct, non-emotional, authoritative and conservative exposition of the practical factors involved in making marriage successful on the sexual level. That describes the book exactly . . . It is primarily concerned with the conduct of the honeymoon and with the technic of the sexual performance." —Hygeia.

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EMERSON BOOKS, Dept. 107, 333 Sixth Ave., N. Y. C.

Is Your Baby Troubled with I-C (Indigestion Constipation)
Exercise Often Helps!

Babies need exercise the same as grown-ups to prevent Indigestion and Constipation troubles. In a Teeterbabe, baby can exercise to its heart's content, developing its muscles and aiding its little organs to function. Physicians endorse it highly for this reason —also because it does not suspend baby by the crotch.

Three Articles in One

A jumper that can be used indoors or outdoors. An auto seat that combines safety and comfort. When placed on an arm-chair, it serves as a high chair.

The **TEETERBABE** **JUMPER SEAT**

Write for Circular Giving Complete Facts

NATIONAL PRODUCTION CO.
4578 St. Jean Ave., Detroit, Mich.

PLEASE MENTION HYGEIA WHEN WRITING ADVERTISERS

REFRIGERATOR FACTS

LIFE-SAVING ILLUMINATION

Nation-wide statistics show that while only 20 per cent of traffic is on our highways during the hours of darkness, nearly 50 per cent of the accidents happen during those hours, and more than half of the fatalities occur then. The reason lies in the inadequacy and faultiness of illumination of streets and highways; and glaring headlights make the task of seeing difficult. A writer in *Safety Engineering* urges the use of smaller, more concentrated headlights, which will be less blinding to the oncoming car and increase roadway illumination at a distance further ahead of the car.

A child will learn three times as fast when he is in tune, as he will when he is dragged to his task.

—*Locke.*

MODERN-MOTHERS INSIST-ON

Vanta

Reg. U. S. Pat. Off.

Baby Garments

Because VANTA garments for small babies are steam sterilized, sealed in baby blue cellophane-window packages.

Because no careless hands can finger VANTA tiny-baby garments. They reach baby ready to wear without washing.

Because VANTA small-baby garments have no pins—no buttons to prick or bruise baby's tender skin.

VANTA LACO BATH KIT

During the hot summer months keep baby cool and comfortable with fine sterilized powder. In the Bath Kit—two full size cans of Vanta Laco Sterilized Powder, one cake of pure castile soap—a bottle of sterilized olive oil—all in a dainty box that sells for $1.00. The finest quality obtainable.

BABY'S OUTFIT — Free. Write for this wonderful book. It tells about baby in Summer, his care — his diet and other interesting things mothers want to know. Also 500 suggestions for names of boys and girls. Address Department H 7.

"Next to your Baby—
There's nothing like Vanta"

Earnshaw Knitting Company
Newton, Massachusetts

ALONG THE LABRADOR LITTORAL

(Continued from page 640)

I became accustomed to having my own villagers come to me for various treatments, but I hesitated to attempt to treat a badly infected eye for a stranger who had heard of a "nurse" at Windy Tickle and had come 15 miles by motor boat, with gasoline for the engine costing 50 cents a gallon. Although I knew the skill and training one should have for undertaking to treat an eye infection, it was not a question of refusing, for the nearest medical station was 50 miles further on with the possibility that the nurse might be miles away on a case. Besides, the man said he could not spare the time from his fishing to go.

So I boiled water in a small aluminum pan that I had brought with me to soak my dried fruit in, made a strong solution of boric acid, tested it first in my own eyes and applied a pack. After several treatments he departed, carrying a flavoring extract bottle full of the "charm"; even the gift of that container was a sacrifice on the part of my hostess. I wrapped a supply of gauze and cotton, for lack of other covering, in plenty of cleansing tissue which would later do duty as handkerchiefs or napkins, for in Labrador there is no such word as waste. Evidently I did not do him any harm, for rumor brought me encouraging reports, and two weeks later my patient himself came to present a 14 pound salmon as a gift to the "nurse."

These are generous, trustful, self reliant people, caught in the trap of life. They are so conservative that they dislike to see women smoke cigarets; so observing of Sunday that never a boat leaves a bay on that day or fishes if it is already out, whether the owner is Catholic or Protestant; so hungry for companionship that they told me they should hate to live as I did in a country where people had to have locks on their doors to keep others out.

The child accident problem can be solved. In the eight-year period from 1922 to 1929, accidental deaths of persons of all ages increased approximately 29 per cent. In the same period, deaths of children under 15 years of age decreased 2.3 per cent. It is said that this decrease may be attributed to the beginning of the study of safety education in the schools.

—Georgia Education Journal.

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A NEW DEODORANT CREAM APPLIED LIKE A LIPSTICK

Instantly banishes odor for the day

BEAUTY advisers to more than 10 million women have poured their praises upon Perstik because it is the *dainty* new way to rob perspiration of its offensive odor. Your fingers hold the handsome lipstick case—they never come in contact with the cream.

A few quick strokes each morning gives you unfailing all-day protection against odor.

Physicians' Wives Use Perstik

Wives of thousands of physicians are daily users of Perstik because it is just as safe as it is easy to use. Perstik never irritates, even after shaving. Not greasy. Approved by Good Housekeeping.

Perstik is as friendly to fabrics as it is to your skin. You can apply Perstik and slip right into your dress.

On Sanitary Pads

Perstik is just the grandest thing in the world for sanitary napkins. Two strokes across the pad—and your secret is your own.

Doctors say that perspiration increases during moments of excitement. To freshen up before your "big moments" carry an extra Perstik in your bag.

All the best department stores and druggists supply genuine Perstik at 50c. Beware of imitations.

PERSTIK
Fifth Avenue, New York

Perstik

THE ORIGINAL "LIPSTICK" DEODORANT

TRAINING FOR ATHLETICS AND HEALTH

(Continued from page 647)

Release the pressure at the count of three, throwing the hands sideways a few inches from the body. At the same time that you release the pressure, return to the starting position. Releasing the pressure causes the chest walls to expand and air to be sucked into the lungs.

"Rest while you count four and five. Then replace your hands on the small of the back and gradually swing forward again, applying pressure. With a constant rhythm, about twelve times a minute, keep applying pressure until normal breathing is restored. Some times it takes hours to restore the normal breathing of a person who has nearly drowned. Similar artificial respiration is also necessary when a person has been gassed or when breathing has been stopped by electric currents traversing the body.

"At the same time that you are giving artificial respiration, instruct your friends or spectators, if there are any, to cover the victim with blankets to keep him warm. When his breathing is restored, unless he is vomiting, give him an internal stimulant, such as hot black coffee or tea. Keep the person lying down, and secure a physician if you can."

"Would you tell us, Mr. Moore, the best way to treat snakebite?" asked one of the boys, who had taken a seat near where the demonstration had been made.

"Another first aid question," exclaimed Ed Moore. "When you stop to think of it, though, there is quite a bit of first aid knowledge that you use only on a summer vacation such as you are on now. This is true of caring for snakebite.

"In the United States there are two poisonous snakes, the rattlesnake and the moccasin, that concern us most. A snake bite is usually located on the lower leg or on the hand. Immediate first aid can be administered by applying a tourniquet between the bite and the heart. On a vacation trip you can make a tourniquet with a handkerchief, a necktie or a belt. Always be sure to twist the tourniquet tightly enough to cut off the circulation of the blood.

"The next step is to open the wound with a knife and suck out the poison. This is not dangerous if you have no sores in your mouth or on your tongue. After the wound has been sucked, so as to extract as much of the poison as possible, the tourniquet may be loosened. It should be allowed to remain loose for one minute and then be tightened up again. Wait twenty minutes; and if no alarming symptoms develop, again release it. This time, allow it to remain loose for two minutes, then tighten it again. Allow another period of twenty minutes to elapse, and on this occasion the tourniquet is left off for three minutes. This procedure should be continued for several hours, gradually increasing the time the tourniquet is off. This method is known as the intermittent tourniquet, the object being to allow only minute quantities of the poison to get into the system at one time.

"Of course, if you know that you are going into a rattlesnake country, it is good foresight to equip yourself with a hypodermic syringe filled with antivenom, which may be purchased or rented at a drug store. This antivenom is the best means of preventing serious consequences from snakebite.

"As long as you boys have started on this subject of first aid that is especially applicable on summer vacations, I might offer a few other suggestions. For instance, catching a fishhook in the flesh is a common accident while camping. It is best not to attempt to remove the hook by pulling it directly out. To do so may cause severe tearing of the tissues. Probably the best method is to push the point of the hook forward and onward in an upward direction and bring it out to the surface at another point. The barbed end can then be cut off with a wire cutter or a file. Once the barbed end has been removed, it is easy to pull out the hook. One must be careful to guard against infection.

When you are bitten by an insect, you often have a chance, too, to use first aid. Bites and stings of mosquitoes and other insects are best treated by applying a few drops of household ammonia water or bicarbonate of soda. In the case of bees, wasps and yellow jackets the sting should be removed before a remedy is applied. If there is much pain, it may be relieved by applying cold cloths or a solution of boric acid.

"In some parts of the country, chiggers, also called red bugs, are the frequent cause of an annoying skin eruption. The insect bores its way directly into the skin and it is therefore necessary to dig the insect out with a needle that has previously been sterilized by being passed through a flame. After exposure to chiggers the body should be well soaped and washed.

"In conclusion, I might add that injuries to the feet are common

F. & R.'s
GENUINE
GLUTEN FLOUR
Guaranteed to comply in all respects to standard requirements of the U. S. Department of Agriculture.
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GENUINE
WHOLE WHEAT FLOUR
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GENUINE
GRAHAM FLOUR
A real old-fashioned, honest-to-goodness Graham Flour; exactly like that made by Dr. Graham
Manufactured by
THE FARWELL & RHINES CO.
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Schools and Camps
Schools for Backward Children

Beverly Farm (INC.) A Home and School for Nervous and Backward Children and Adults
220 acre farm. 7 bldgs. New school gymnasium. 35th year. Industrial and school training given. Dept. for birth injury cases. GROVES BLAKE SMITH, M.D., Supt. Godfrey, Ill.

THE SYLVESTER SCHOOLS
For boys and girls whose progress has been hindered or retarded by illness, nervousness, speech defects or inability to adapt themselves to the usual form of instruction. Birchmont, new hall for girls. Illustrated catalog. 1612 Pleasant St., Des Moines, Iowa.

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Home school for nervous, backward children. *Best in the West.* Beautiful buildings. Spacious grounds. Experienced teachers. Individual supervision. Resident physician. Enrolment limited. Endorsed by physicians, educators. Booklet. E. Haydn Trowbridge, M.D., 1810 Bryant Bldg., Kansas City, Mo.

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FOUNDED 1852
A private non-sectarian school for the education and training of children whose minds have failed to develop normally.
Nineteen major buildings, four hundred and forty acres, faculty of nineteen specially trained teachers, resident staff of three physicians. Booklet on request.
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TRAINING FOR ATHLETICS AND HEALTH

while vacationing. When you know that you are going to do a lot of hiking, see to it that you have well fitting shoes. Break in your shoes before you go on your vacation. Wear cotton socks and get them large enough to allow free movement of the feet.

"When you are on a hiking trip, it is best to wash the feet and change your socks every day. Even with all these precautions your feet may become swollen. In such a case wash your feet with warm salt water. The feet can be made more comfortable by soaking them in a solution of alcohol and salt.

"And now I must close, for it is bedtime for all of us. I have enjoyed talking to you boys, and I hope you will have many happy vacations, such as this one, throughout your lives."

"I must say, Ed, that was a worthwhile talk," commented Jack, as the three men left the boys' camp. "You know, if I stay around you men very long you will have me completely sold to life in the great outdoors."

"That is exactly what we should like to do," returned Bill Murray. "And when that day comes, you will be one of the happiest men in the state."

(To be concluded)

TRACHOMA IS INCREASING AMONG WRESTLERS

Trachoma, an eye disease which is one of the principal causes of blindness, has been noted recently as increasing among wrestlers, according to the National Society for the Prevention of Blindness.

The society has called the attention of professional wrestlers to the situation. They have been urged to have their eyes examined by an eye physician as a precautionary measure if their eyes are bothering them. This will not only protect the wrestler himself but it will also prevent the spreading of trachoma to others, as the disease is communicable in close contact.

Several eye physicians have also reported cases of trachoma among college athletes who engage in wrestling. While trachoma has been almost an occupational disease among professional wrestlers for a long time, it has increased in recent years because such a large number of young college men have gone into the sport professionally.

The disease is easily transmitted from one wrestler to another, as the bodies of the two men are in close contact and their perspiration and tears may easily reach the eyes.

NEWS FOR MOTHERS!

Children protected against simple goiter are found to be superior in development

ACCEPTED AMERICAN MEDICAL ASSN. Committee on Foods

IODINE, by protecting children from simple goiter, exerts a remarkably beneficial effect on growth.

This was demonstrated by Dr. Percy Stocks, of a famous university, who compared the heights and weights of a large number of 12-year-old youngsters who had been taking iodine regularly with those of an equal number of 12-year-olds who had not.

He found that those who had been receiving iodine averaged almost 2 inches taller and about 8 pounds heavier than those who had been given no iodine. Thus proving the wisdom of protecting children from the growth-hampering effects of simple goiter!

If you want *your* children to escape being handicapped by this disorder, begin to use Morton's Iodized Salt *at once!* It is neither a drug nor medicine, but just a pure white table salt to which has been added sufficient iodine to prevent simple goiter.

The fact that Morton's Iodized Salt has been accepted by the American Medical Association's Committee on Foods is ample assurance of its reliability. Get it today and use it regularly, both on the table and in cooking.

WHEN IT RAINS IT POURS

ARCHERY IS SAFE SPORT FOR CAMPS

The first consideration of the camp director who plans to make archery an activity of his camp should be the proper conducting of the sport so that accidents cannot happen to the archers or bystanders.

First of all, to be safe, an archery range must be properly located, and it frequently takes careful planning and some amount of ingenuity to decide this question of location and yet not lose sight of some of the other features that must be considered. Fortunately, the range of an arrow is comparatively limited, so that a reasonable margin of safety may be much less than with firearms. For girls' camps the range is about 50 yards, and the Columbia Round is the most suitable event; in boys' camps, where the American Round is the most popular, the maximum range is 60 yards.

Behind the target there should be either 15 or 20 yards of level ground or a hillside, preferably devoid of trees, in the opinion of a writer in *The Camping Magazine*. He makes the point emphatic that there should not be any pathways behind the targets for at least 50 yards and that if such a pathway is in existence and cannot be avoided, its use should be shut off during shooting hours and a strict discipline maintained to prevent its use at that time. Pathways along the edges of the range are much less dangerous, as even beginners seldom shoot more than a few feet out of line. However, these paths should also be avoided if possible.

Target equipment that is ordinarily used in camps is practically incapable of causing fatalities. The standard "parallel point" used for target shooting has poor powers of penetrating flesh. The bullet point is more dangerous, and the so-called broadhead, or hunting arrow, is a killing weapon of the first order. However, it would probably be impossible to kill a person, even deliberately, with the ordinary target arrow and bow, although an extremely painful injury could be inflicted. Men's target weapons are more dangerous; but since these are seldom used in camps, they need not be considered as an element of danger.

Another factor that has probably been instrumental in keeping the record of archery accidents low is the fact that children are more afraid of an arrow than they are of a bullet.

Taking the other fellow's dust is better than "to dust returneth."

Read This Article in the August HYGEIA

If Your Baby is TEETHING

Is your baby restless, with an elevated temperature? Are his gums swollen and does he refuse to eat? Many young mothers who are worried about their babies will find helpful information and advice in Dr. Abraham Tow's excellent article on "Teething." He explains the disturbances of various kinds that may upset the normal routine of the baby when it is teething. Such knowledge can help mothers to care intelligently for their little ones during this trying time.

The August HYGEIA Will Also Cover These Timely Topics

"SWEPT BY A COOL BREEZE"

Do you want to know how to have a restful and enjoyable vacation at home this summer? Melba Acheson tells how to make your home cooler during the heated season, and how to make housekeeping easier. Her menus and recipes for outdoor meals will interest every mother who dreads the round of preparing hot dinners on hot days. Follow her suggestions and enjoy a comfortable summer at home if you are not going to Newport this season!

"YOUR SKIN IS YOUR REFRIGERATOR"

Do you know what would happen if we did not perspire? And why we feel the heat more if the air is humid? Dr. Lee D. Cady explains these matters and describes "nature's cooling system" in a timely and interesting article. His suggestions for withstanding the effects of summer heat can help you to live through the torrid season more comfortably than you might otherwise do. Don't miss reading this!

"A CLUB-WOMAN LOOKS AT ANIMAL EXPERIMENTATION"

"Those who oppose vivisection are down on it because they are not up on it," comments Gertrude H. Campbell. This article, written by an intelligent clubwoman, explains the subject to other women who are interested in the good of their families and their communities. She gives instances in which animals used in research have saved innumerable human lives, and her article will open your eyes if you are not familiar with what is being done by scientists along this line.

"ABSCESSED TEETH"

Since much general infection is caused by chronic abscessed teeth, Dr. Robert H. Brotman's explanation of the cause of this condition and the complications that sometimes follow will be of interest to many HYGEIA readers. He clears up some misconceptions concerning abscessed teeth and their removal. An enlightening article that should be helpful to many!

A NEW SERIES BEGINS IN AUGUST—"THE EYE BOOK"

In an extensive series of articles, Dr. Hyman Cohen covers practically everything the layman should know about eyes, and does it in a way that can be easily understood. He describes in detail the structure of the eye, gives a clear explanation of optical defects, explains the need for eye glasses, and discusses crossed eyes and first aid for eye injuries. Don't miss this important series in HYGEIA!

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TO PREVENT SNAKEBITE

Wear high boots, high shoes or heavy leggings when walking through snake-infested territory.

Exercise care in reaching for an object or picking up an object from the ground, and in climbing rocks be sure that the hands are not placed in the vicinity of a snake.

What Not to Do

Do not run or get overheated.

Do not take any alcoholic stimulants, because circulation increased by alcohol or by exercise serves to distribute the poison through the body much more rapidly.

Do not injure the tissues by injecting permanganate of potash, which is now known to be of no value as an antidote.

Do not depend on "home remedies" or "snakebite cures" for they are of absolutely no value.

What to Do

Carry a clean, sharp knife or razor blade when in snake-infested territory.

After making proper incisions at the site of the wound, apply suction and continue for at least half an hour.

Apply a tourniquet above the site of the wound, releasing it every ten or fifteen minutes for about a minute at a time.

If the proper antivenom serum is available, apply it according to directions, but most important of all is to remove as much of the poison as is possible so as to prevent its absorption.

Secure the services of a physician at the earliest possible moment.

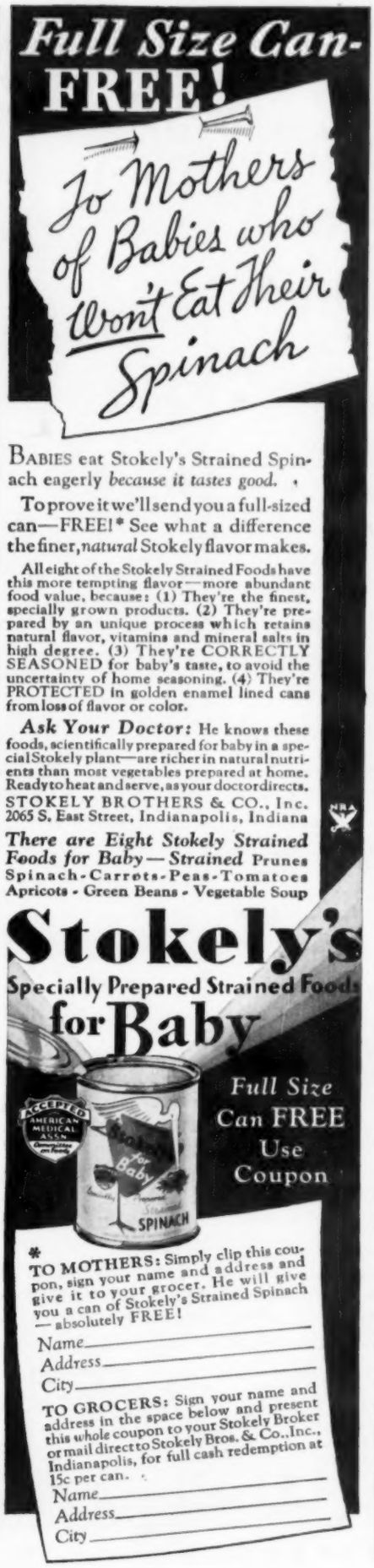
—*Weekly Bulletin*, California Department of Public Health.

DIET AND TEMPERANCE

Thinking people are beginning to realize the intimate relationship between diet and temperance, according to one writer in *The Pacific Coast Journal of Nursing*. True temperance will result if the following suggestions are heeded, for under such a plan of living there will be little desire for tobacco, alcohol, tea or coffee, the author says.

These principles of true temperance are:

1. Choose a simple diet, using vegetables and fruits freely.
2. Do not overeat.
3. Eat at regular intervals.
4. Thoroughly masticate the food.
5. Avoid the use of condiments, as mustard, pepper, vinegar and highly spiced foods.
6. Drink water freely.
7. To this program add plenty of exercise and sleep.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TO GROCERS: Sign your name and address in the space below and present this whole coupon to your Stokely Broker or mail direct to Stokely Bros. & Co., Inc., Indianapolis, for full cash redemption at 15c per can.
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LOCATION, WATER SUPPLY, SANITATION IMPORTANT TO GOOD CAMPS

The question of suitable camp sites and other problems that must be constantly confronted by campers are discussed in *Nature Magazine* with the suggestion that while the tent should be pitched under trees for protection, for fuel and for support of tent ropes, still there should be fair ventilation to reduce the number of insect pests and to allow tentage and ground cover to dry quickly after rain. Wherever the camper pitches his tent, he will want to face it in such a way that it will receive the direct rays of the sun for a few hours each day, preferably in the morning so that the dew and dampness of the night will disappear as soon as possible. A good camp site must be reasonably level but with sufficient elevation to insure satisfactory drainage; there must be a good supply of wood that burns well and a dependable source of pure drinking water.

Suspected water, or practically any water supply frequented by man, should be treated in one of the following ways: First, boil the water actively for twenty minutes. Second, dissolve one halazone tablet in each quart of water, and allow the water to stand for half an hour before using it. Third, mix 1 teaspoonful of fresh calcium hypochlorite to a paste, and dissolve it in 1 quart of warm water. Add 1 teaspoonful of this stock solution to every 2 quarts of water to be disinfected, and let the water stand for half an hour.

A camper is known by the condition in which he leaves his camp site, the disposal of human waste being one of his chief problems. In temporary camps, the simplest and most sanitary type of latrine consists of a trench not over 10 inches wide; the length and depth should be sufficient so that when it is time to break up camp a foot of earth may be filled in. Earth is added each time the latrine is used.

If liquids are kept out of the garbage, it can be burned in the camp fire after the kettle of dishwater has been taken off following the meal. Material that will not burn can be confined to the trench. Tin cans should be burned out, pounded flat and buried. No bottles, jars or glasses should be left in which water can collect, become stagnant and provide breeding places for mosquitoes.

All inflammable material should be cleared away from the vicinity of the camp fire before the fire is lighted. The camper should make certain that his fire is completely extinguished before leaving it.

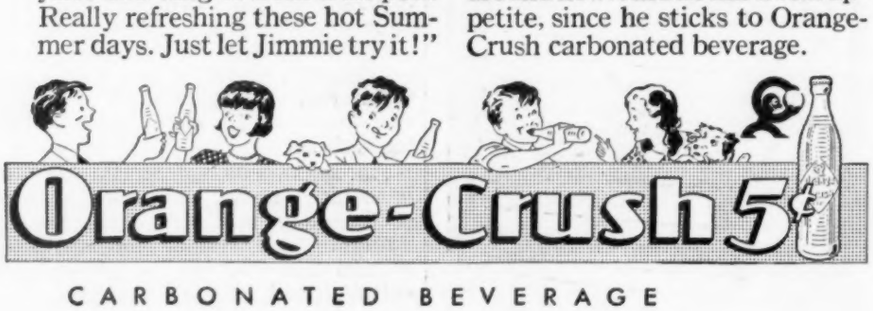
Jimmie pestered for all kinds of truck UNTIL...

● I got so I hated to take Jimmie near a store. He'd pester and tease so for things that weren't good for him. Then by chance one day I found what to do. Sue Preston told me.

"I had the same trouble with my Bobbie till I found out about Orange-Crush beverage," she said. "It contains *real*, fresh orange juice and tang of fresh fruit peel. Really refreshing these hot Summer days. Just let Jimmie try it!" I did. And Jimmie prefers it to some of his old favorites that I wasn't so sure about. I checked with the doctor on Orange-Crush.

"Give Jimmie all he wants," he said. "Orange-Crush beverage is accepted by the American Medical Association Committee on Foods. It gives energy pick-up."

Jimmie's a pleasure to take around now. And he has a real appetite, since he sticks to Orange-Crush carbonated beverage.



CARBONATED BEVERAGE

ACCEPTED AMERICAN MEDICAL ASSN. Committee on Foods

ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COMMITTEE ON FOODS

Special methods of preparation, bottling and delivery enable retention in high degree of the delightful goodness of the orange juice and tang of the fresh fruit peel. Orange-Crush Carbonated Beverage is a refreshing, wholesome drink that children enjoy.

Orange-Crush Carbonated Beverage contains pure, sparkling, carbonated water, pure cane sugar, fresh orange juice, flavor of peel, fruit acid, certified food color and one-twentieth of one per cent benzoate of soda.